

EDUCATION SECRETARIAT

Dated 19th August 1952.

No. E. 6928—Uni. 29-52-2. The following Notice No. 4/1/52-E, dated 19th July 1952, issued by the Union Public Service Commission, New Delhi, regarding Engineering Services Examination, January, 1953, is herewith republished (with the Corrigendum) for the information of the public.

By Order of His Highness the Maharaja,

M. S. SWAMINATHAN,

Secretary to Government,
Education Department.

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UNION PUBLIC SERVICE COMMISSION.

NOTICE.

New Delhi, the 19th July 1952.

No. 4/1/52-E.—A competitive examination for recruitment to (1) the Indian Railway Service of Engineers, (2) the Electrical Engineering Department of the Superior Revenue Establishment of Indian Railways, (3) the Signal Engineering Department of the Superior Revenue Establishment of Indian Railways, (4) the Central Engineering Service, Class I, (5) The Central Engineering Service, Class II, and (6) the Telegraph Engineering Service, Class I, will be held on the 5th January 1953, and following days at Allahabad, Bombay, Calcutta, Delhi and Madras under the rules for recruitment to these Services published in the *Gazette of India*, by the Ministry of Railways (Rly. Board) in their Notification Nos. E 51RR 2-2, E 52RR 4, E 51RR 6, dated 14th June 1952 and by the Ministry of Works, Housing and Supply in their Notification No. E-3(539)/52, dated 14th July 1952 and by the Ministry of Communications in their Notification No. STA971/52, dated 10th July 1952. Candidates accepted for admission to the examination will be informed at what place or places and at what hour they should present themselves.

NOTE.—Candidates who compete for the Indian Railway Service of Engineers or the Signal Engineering Department or the Electrical Engineering Department may be appointed to the Stores Department of the Superior Revenue Establishment of Indian Railways.

2. The examination will be a combined one for the purpose of filling vacancies in the Services and Departments mentioned above. A candidate may apply to be admitted to one or more of these Services. Only one application need be sent in and it should be stated therein whether a candidate wishes to enter for one or more Services or Departments. He/She will be required to pay the fees mentioned in the Rules, or the Compendium of the Rules mentioned in paragraph 4 below, once only and will not be required to pay separate fees for each Service or Department for which he/she applies. The Government of India, may assign a successful candidate to any Service for which he/she is competing on a consideration of all the circumstances including any personal preference expressed by the candidate.

3. (a) The number of vacancies to be filled in the Indian Railway Service of Engineers, the Signal Engineering Department and the Electrical Engineering Department of the Superior Revenue Establishment of Indian Railways and the Stores Department of Indian Railways on the results of the examination will be 6, 2, 4 and 1 respectively. The number of vacancies to be reserved for candidates belonging to Scheduled Castes and Scheduled Tribes, etc., will be determined later and announced separately.

(b) The number of vacancies to be filled in the Central Engineering Service Class I and Class II on the results of this examination is 6 and 3 respectively. Of these, 2 and 1 vacancies for each of C.E.S. Class I and Class II are reserved for Scheduled Castes and Scheduled Tribes respectively.

(c) The number of vacancies to be filled in T.E.S. Class I on the results of this examination is likely to be not more than 8. Two vacancies are reserved for candidates belonging to Scheduled Castes and 1 for candidates belonging to Scheduled Tribes.

4. Applications with connected papers should be submitted in accordance with the Instructions to Candidates and should reach the Union Public Service Commission on or before the 30th August 1952. Applications from candidates residing abroad will be accepted up to 13th September 1952. Copies of the application form and other connected papers may be obtained direct from the Secretary, Union Public Service Commission, Dholpur House, Post Box No. 186, New Delhi, on payment of Re. 1 which should be remitted to the Commission by Money-Order stating the name of examination in respect of which the application forms are required. Candidates will not be supplied with copies of the complete Rules, but only with a compendium of Rules which will contain the essential conditions of eligibility.

5. No allegation that an application form, or letter respecting such form has been lost or delayed in the post will be considered, unless the person making such allegation produces a post office registration receipt or certificate of posting. Candidates who delay their applications or their requests for forms until a late date will do so at their own risk.

6. (a) (i) Candidates for the Indian Railway Service of Engineers, the Central Engineering Service, Class I the Central Engineering Service, Class II, and the Telegraph Engineering Service, Class I, must have attained the age of 20 and must not have attained the age of 25 years on the 1st of August 1952, i.e., they must have been born not earlier than the 2nd August 1927 and not later than the 1st August 1932.

(ii) Candidates already in service in the Posts and Telegraphs Department who are over the age of 25 and under the age of 30 years on the 1st of August 1952, may, however, be admitted to the examination for recruitment to the Telegraph Engineering Service, Class I, provided they either hold substantively a permanent post and are recommended by the Director-General of Posts and Telegraphs or hold the following categories of temporary posts in the Posts and Telegraphs Department.—(1) Repeater Station Assistants, (2) Foremen and Assistant Foremen, Telegraph Workshops, (3) Temporary Assistant Engineers, Workshops, and have been in continuous service in these posts for a period of not less than two years on the 1st of August 1952 and are recommended by the Director-General of Posts and Telegraphs.

(b) (i) Candidates for the Signal Engineering and the Electrical Engineering Departments of the Superior Revenue Establishment of Indian Railways must have attained the age of 21 and must not have attained the age of 25 years on the 1st of August 1952, i.e., they must have been born not earlier than the 2nd August 1927 and not later than the 1st August 1931.

(ii) Candidates already in Railway Service who are over the age of 25 and under the age of 30 years on the 1st of August 1952, may however, be admitted to the examination for recruitment to the Signal Engineering and Electrical Engineering Departments of the Superior Revenue Establishment of Indian Railways provided they hold substantively a permanent post and are recommended by their department or office.

(c) The upper age limit prescribed in sub-rules (a) (i) and (ii), (b) (i) and (ii) above will be relaxed—

- (i) Up to a maximum of three years if a candidate belongs to a Scheduled Caste or a Scheduled Tribe or is a *bona fide* displaced person from Pakistan, and
- (ii) Up to a maximum of six years if a candidate belongs to a Scheduled Caste or a Scheduled Tribe and is also a *bona fide* displaced person from Pakistan.

These age limits can in no case be relaxed.

7. Candidates who have appeared, or would be appearing before the commencement of this examination at an examination the passing of which would render them eligible to appear at this examination, but who have not been informed of the result, may apply for admission to this examination. Their applications will be accepted provisionally and they will be required to furnish proof of having passed the qualifying examination as soon as

possible and normally not later than the date of the commencement of this examination.

8. If any candidate, who took the Engineering Services Examination held in December 1951, wishes to apply for admission to this examination, he/she must submit his/her application by the prescribed date without waiting for an offer of appointment. If he/she secures an appointment on the results of the 1951 examination, his/her candidature for this examination will be cancelled on request.

9. In all correspondence with the Union Public Service Commission, candidates should invariably superscribe their envelopes and correspondence with the words, "Engineering Services Examination, January, 1953."

B. SHUKLA,

Deputy Secretary,

Union Public Service Commission.

UNION PUBLIC SERVICE COMMISSION (INDIA).

Engineering Services Examination.

Instructions to candidates regarding the filling up and submission of applications.

(1) Copies of the application form and other papers relating to the Examination are sent herewith. Candidates should consult them to see if they are eligible, before filling up the Application form or paying the prescribed fee into a treasury. The conditions prescribed cannot be relaxed.

(2) The application form should be filled up in the candidate's own handwriting and all answers should be given in words and not by dashes or dots. It should be submitted direct to the Secretary, Union Public Service Commission, P.O. Box No. 186, Dholpur House, New Delhi. A Government servant (whether in a permanent or temporary capacity) must submit his/her application form through the Head of the Department or office concerned. No application received after the date prescribed in the Notice will be accepted.

(3) If a candidate sends his/her application by post and desires an acknowledgment he/she must send the application "Registered acknowledgment due".

(4) A candidate who is found to have knowingly furnished and particulars which are false or to have suppressed material information, will be disqualified and, if appointed, will be liable to dismissal.

(5) The candidate must send the following documents with his/her application:—

(i) A consolidated application and examination fee of Rs. 81-8-0 (Rs. 19-10-0 in the case of candidates belonging to the Scheduled Castes and Scheduled Tribes) with the application. (Only a treasury receipt or *crossed* Indian postal orders for this amount payable to Secretary, Union Public Service Commission at New Delhi Post Office will be accepted by the Union Public Service Commission. The Commission cannot accept the fee in cash or cheques.)

(ii) A certificate of age.

(iii) A certificate of character.

(iv) A certificate of Educational Qualification.

(v) In the case of candidates offering surveying as an optional or compulsory subject, a certificate in original, with a copy thereof, showing that the candidate has undergone satisfactory training in Surveying including Practical Surveying (See Syllabus).

Details of the required documents mentioned in items (i), (ii), (iii) and (iv) are given below.

N.B.—Candidates are warned that if the application is incompletely or wrongly filled up or is not accompanied by any of the documents mentioned in items (ii), (iii), (iv) and (v) above or a reasonable explanation of its absence it will be summarily rejected and that no appeal against its rejection will be entertained.

Candidates are hereby further warned that they must submit the documents which they have not submitted with their applications and for the absence of which they have given explanation in their applications soon after the submission of the applications. In any case they must be sent so as to reach the Commission's office one month

before the date of commencement of the Examination; otherwise their candidature for the examination will be rejected.

Candidates are also warned that they should in no case tamper with the entries in the documents submitted by them. Candidates found guilty of tampering are liable to be prosecuted, in addition to being permanently debarred from Commission's examinations and selections and from employment under Government.

(i) A treasury receipt for Rs. 81-8-0 (Rs. 19-10-0 in the case of candidates belonging to scheduled castes or scheduled tribes). The amount may be deposited in the nearest Government Treasury, or in a branch of the Imperial Bank of India, or in a State Treasury authorised to transact business on behalf of Government. (Amounts deposited at Bombay, Calcutta, Delhi or Madras should be deposited in the Reserve Bank of India instead of in the Imperial Bank of India). The Treasury or Bank should be asked to credit it to the account head "XXXVI—Miscellaneous Departments, Examination fees, Receipts of the Union Public Service Commission". Candidates must see by reference to the rules that they are eligible and must decide definitely to apply before depositing this fee in the treasury. The fee will not in any circumstances be refunded once an application has been considered by the Commission nor will it be held in reserve for any other Examination or Selection. The name of the examination and of the treasury at which the fee is deposited should be clearly entered in the treasury receipt. The treasury receipt should be on the form pertaining to Central Government transactions and should be obtained from the treasury at which the fee is deposited.

NOTE 1.—Candidates who are in the United Kingdom, the United States of America, Canada, Australia, Ceylon, Pakistan, Burma, or Malaya at the time of submitting their applications should deposit the amount of their prescribed fee [the equivalent fee of Rs. 81-8-0 (Rs. 19-10-0 in case of candidates belonging to Scheduled Castes and Scheduled Tribes)] in the office of India's High Commissioner, Ambassador or Representative, as the case may be, in that country and forward the receipt from that office.

NOTE 2.—Cash or cheques will not be accepted by the Union Public Service Commission.

NOTE 3.—All Postal Orders should bear the signature of the Issuing Post Master and a clear stamp of the Issuing Post Office. All Postal Orders should be *crossed* and made payable to Secretary, Union Public Service Commission at New Delhi Post Office and in no case will Postal Orders payable at any other Post Office be accepted. Defaced or mutilated Postal Orders will also not be accepted.

NOTE 4.—An application not accompanied by a treasury receipt or *crossed* Indian Postal Orders for Rs. 81-8-0 (Rs. 19-10-0 in the case of candidates belonging to scheduled castes or scheduled tribes) will be summarily rejected and no explanation for inability to send the treasury receipt or *crossed* Indian Postal Orders with the application will be considered. This does not apply to displaced persons seeking remission of the fee, *vide* paragraph 11 (ii) below.

(ii) *Evidence of age.*—The only proof of age ordinarily accepted by the Commission is the age or date of birth entered in the Matriculation Certificate or in the Secondary School Leaving Certificate, or in a certificate recognised by an Indian University as equivalent to Matriculation or in an extract from a Register of Matriculates maintained by a University, which extract must be certified by the proper authority of the University. The expression 'Matriculation Certificate' in this part of the instructions must be understood as including these alternative certificates.

Candidates will thus understand that the Matriculation Certificate is required in all cases as evidence of age, and it must invariably be sent to the Commission in original with a copy thereof together with the application.

Sometimes the Matriculation Certificate only shows the age by completed years or completed years and months. This may be sufficient by itself to show that the candidate is eligible by age to compete and, if so, nothing more is required. But if it is necessary for the candidate to prove the exact date of his/her birth (as will happen when his/her age is near to upper or lower limit) and the Matriculation Certificate does not show this, he/she must

send, in addition to the Matriculation Certificate, an original certificate together with a copy thereof, from the Headmaster of the High School which he/she first attend, showing the date of his/her birth or his/her exact age as recorded in the school admission register. In such circumstances an Anglo-Indian or an Indian Christian should send his/her original baptismal or birth registration certificate, together with a copy thereof, instead of the Headmaster's certificate.

A candidate who has passed the Matriculation examination as a private student, must submit, in addition to the Matriculation Certificate, a certificate from the Headmaster of the school, which he/she first attend, showing the date of his/her birth or his/her exact age as recorded in the school admission register, if no school was ever attended, a statement to that effect should be made against column 16 (a) of the application form. The application of a private student who can produce no evidence in support of his/her age stated in the Matriculation Certificate may be rejected.

Candidates are warned that unless complete proof of age in the form laid down in these instructions is sent with an application, the application may be rejected and the candidate disqualified for admission to the examination. Further, they are warned that if the date of birth stated in the application is inconsistent with the age shown in the Matriculation Certificate and no explanation is offered, the application may be rejected [*vide* Note (4) below].

NOTE (1).—A candidate who holds a completed Secondary School Leaving Certificate need submit with the original a copy of only the page containing entries relating to age.

NOTE (2).—A transfer certificate from a school or college will not be accepted as evidence of age.

NOTE (3).—The age and Nationality Certificate, issued by some State authorities is not required.

NOTE (4).—Ordinarily, the Commission do not accept a date of birth other than that proved or supported by the Matriculation Certificate. If they do so, they require not only convincing proof of the date claimed but also a satisfactory explanation of the incorrect entry in the Matriculation Certificate. When once a date of birth has been claimed and accepted by the Commission for the purpose of admission to an examination, no change will be allowed at a subsequent examination. Candidates who wish to challenge the entry of their age in a Matriculation Certificate, must do so at the first opportunity. In such cases, a candidate must send direct to the Union Public Service Commission all the evidence on which he/she bases his/her claim, as soon as he/she has submitted his/her application.

NOTE (5).—Displaced persons, who have lost their original Matriculation Certificates in Pakistan, should obtain duplicate certificate from the University concerned. If they are unable to obtain the duplicate Matriculation Certificate from the University, they should submit an extract from the University Gazette in which their results were published showing their date of birth and certified by the Registrar or the Headmaster.

(iii) Character certificate.—Candidates must submit a certificate of character in original together with a copy thereof, from some person in authority (e.g., Principal, Proctor, Dean, etc.), at an educational institution which the candidate is attending or has attended for at least one year during the three years immediately preceding the date of his/her application.

The signatory of the certificate should give his designation in full.

NOTE 1.—Candidates who have not attended any educational institution for at least one academic year within three years of the submission of their applications may submit a certificate of character, in original with a copy thereof, from a Gazetted Officer in service.

NOTE 2.—Only one certificate of character is required.

(iv) Certificate of educational qualifications.—Certificate of diploma in original (with a copy thereof) showing that the candidate has one of the qualifications prescribed in the Rules. The certificate submitted must be one issued by the authority (i.e., University or other examining body) awarding the particular qualification. If such a certificate or diploma is not submitted, the candidate must explain its absence, and submit such other evidence (in original) as

he/she can to support his/her claim to the requisite qualifications. The Commission will consider this evidence on its merits but do not bind themselves to accept it as sufficient.

NOTE 1.—The originals of the certificates forwarded in accordance with paragraph 5 (ii), (iii), (iv) and (v) will be returned when the result of the application is communicated. Candidates are advised to keep attested copies of their certificates before submitting them to the Commission. The Commission cannot return the certificates earlier than the date of communication of the result of the application for whatever purpose they may be required, nor can they supply attested copies.

NOTE 2.—If the candidate has already submitted the certificates required in paras 5 (ii), 5 (iii), 5 (iv) and 5 (v) above in connection with another examination conducted by the Union Public Service Commission and if they have not yet been returned to him/her, he/she should mention the fact when submitting his/her application, and if possible enclose a copy of each certificate. If the certificates are not with the Commission, they should be sent with the application, irrespective of whether the candidate appeared at a previous examination conducted by the Commission or not. If any certificate cannot be submitted with the application, a reasonable explanation of its absence must be given in the application.

NOTE 3.—Candidates who have appeared at an examination the passing of which would render them eligible to appear at the examination but have not been informed of the result, may apply for admission to the examination. Candidates who intend to appear, at such a qualifying examination may also apply, provided the qualifying examination is completed before the commencement of this examination. Their applications will be accepted provisionally and they will be required to furnish proof of having passed the examination as soon as possible and in any case not later than the date of the commencement of the examination.

(6) The fact that an application form has been supplied, on whatever date, will not be accepted as an excuse for the late submission of an application or as evidence of the receiver's eligibility for admission to the examination.

(7) Every candidate for admission to this examination will be informed at the earliest possible date of the result of his/her application. It is not possible for them, however, to say when that result will be communicated. But, if a candidate does not receive from the Union Public Service Commission a communication regarding the result of his/her application one month before the commencement of the examination, he/she should at once write to the Commission. Failure to comply with this provision will deprive the candidate of any claim to consideration.

All returnable certificates or papers will be returned when the result of his/her application is communicated to the candidate.

(8) All communications in respect of an application should be addressed to the Secretary, Union Public Service Commission, Dholpur House, Post Box No. 186, New Delhi, and should contain the following particulars:—

Name of examination.

Month and year of examination.

Roll No. (if communicated to the candidate).

Name of candidate.

Address as given in application.

Communications not giving these particulars may not be attended to.

All envelopes containing applications and other correspondence concerning this examination should be superscribed with the words, "Engineering Services Examination, January 1953."

(9) Candidates must make arrangements to see that communications addressed to them at the addresses stated in their applications are redirected, if necessary. Also, any change of address should be communicated at once to the Secretary, Union Public Service Commission. Although the Union Public Service Commission make every effort to take account of changes in candidates' addresses they cannot accept any responsibility in the matter.

(10) Only candidates who are considered for appointment will be medically examined. The question of revising the regulations for the medical examination of candidates is under consideration at present and final decisions on this question will be announced in due course. Meanwhile, candidates are advised to consult a Government Medical Officer of the status of a Civil Surgeon as to their physical fitness before entering for the examination. A copy of the present Regulations for the physical examination of candidates is sent herewith. These regulations are published for the convenience of candidates and in order to enable them to ascertain the probability of their coming up to the required physical standard but they are not intended to restrict the discretion of medical examiners in any way.

(11) (i) A candidate who claims to belong to one of the Scheduled Castes or Scheduled Tribes should submit in support of his/her claim a certificate, in original, in the form given below, from the District Officer of the district in which his/her parents (or surviving parent) ordinarily reside at the date of his/her application or, if both his/her parents are dead, of the district in which he/she himself/herself ordinarily resides otherwise than for the purpose of his/her own education.

Certificate to be produced by Scheduled Castes and Scheduled Tribes candidates applying for appointment to posts under the Government of India.—

This is to certify that son of of Village..... District/Division..... in the..... State..... belongs to the..... community which is recognised as a Scheduled Caste/Tribe under the Constitution (Scheduled Castes) Order, 1950/the Constitution (Scheduled Tribes) Order, 1950/the Constitution (Scheduled Castes) (Part C States) Order, 1951/the Constitution (Scheduled Tribes) (Part C States) Order, 1951. Shri..... and/or his family ordinarily reside(s) in the..... District/Division of the..... State.

Dated : District Magistrate.

..... Deputy Commissioner.

..... State.

Seal.

N.B.—(a) The term ordinarily reside used here will have the same meaning as in Section 20 of the Representation of the Peoples Act, 1950.

(b) Where the certificates are issued by Gazetted Officers of the Union Government or State Governments, they should be in the same form but countersigned by the District Magistrate or Deputy Commissioner. (Certificate issued by Gazetted Officers and attested by District Magistrate/Deputy Commissioner are not sufficient).

(ii) A displaced person seeking remission of the prescribed application and examination fee should forward along with his/her application his/her Refugee Registration card (in original) and a certificate (also in original) from a District Officer, or a Gazetted Officer of Government or a Member of Parliament or of a State Legislature to show that he/she is not in a position to pay the prescribed fee.

(iii) A displaced person claiming age concession should produce in original satisfactory evidence of being a *bona fide* displaced person, e.g., Registration Card or a Certificate from a responsible Gazetted Officer of the Central Government or the District Magistrate of the area in which he/she may for the time being be resident.

(12) (i) A person in whose case a certificate of eligibility is required should apply to the Government of India, Ministry of Railways, Works, Housing and Supply Communications, for issue of the required certificate of eligibility in his/her favour.

(ii) If a certificate of eligibility is not necessary in the case of a person who has migrated from Pakistan, he/she should produce an affidavit sworn before a first class Magistrate in one of the following forms, whichever may be applicable to him/her:—

1. "I declare that I migrated to India from areas which now form Pakistan before the 19th July 1948 and have ordinarily been resident in India since then."

2. "I declare that I migrated to India from areas which now form Pakistan after the 18th July 1948 but before the 30th September 1948 and have ordinarily been resident in India since then and I further declare that I had got myself registered as a citizen of India before the 26th January 1950."

3. "I declare that I migrated to India from Pakistan and entered the Union Services without a certificate of eligibility before the commencement of the Constitution, i.e., 26th January 1950, and am continuing in such service since then without a break."

(13) Copies of Pamphlets containing the rules, the question papers, the reports of examiners and the table of results of the examinations held previously by the Union Public Service Commission are on sale by the Manager of Publications, Civil Lines, Delhi and may be obtained from him direct.

Compendium of Rules.

1. (i) A candidate who is in permanent or temporary Government service shall apply to the Commission for admission to the examination through the Head of his/her Department, who shall forward his/her application to the Commission unless he refuses his consent to the application.

NOTE.—The submission of applications by persons in Government service is further governed by the Government (Central Services)

Servants' Application for posts rules (Railway Services) Home Department

(published with the Government of India Railway Department

No. 189/43/Ests.,

Notification dated the (Railway Board) No. E.34-R.R.I., 8th December 1943

....., as amended from time to time, and the 22nd January 1935

corresponding rules made by State Governments. (ii) A candidate who is not in Government service shall submit his/her application direct to the Secretary, Union Public Service Commission.

(iii) No candidate may make more than one application in respect of any one occasion on which an examination is held.

2. A candidate must be either—

- a citizen of India, or
- a subject of Sikkim, or
- a person who has migrated from areas which now form Pakistan with the intention of permanently settling in India, or
- a subject of Nepal or of a Portuguese or French possession in India.

NOTE.—The appointment of candidates in categories (c) and (d) above will be subject to the issue of certificates of eligibility in their favour by the Government of India. Certificates of eligibility will not however be necessary in the case of candidates belonging to any of the following categories:—

- Persons who migrated to India from Pakistan before 19th July 1948 and have ordinarily been resident in India since then;
- Persons who migrated to India from Pakistan after 18th July 1948 but before 30th September 1948 and had got themselves registered as citizens within the time allowed;
- Non-citizens who entered service under the Government of India before the commencement of the Constitution, viz., 26th January 1950, and who have continued in such service since then. Any such persons who re-entered or may re-enter such service with a break, after the 26th January 1950, will however require certificates of eligibility in the usual way.

3. (a) (i) A candidate for the Indian Railway Service of Engineers the Central Engineering Service, Class I, the Central Engineering Service, Class II and the Telegraph Engineering Service, Class I, must have attained the age of

20 and must not have attained the age of 25 years on the 1st of August 1952.

(ii) Candidates already in service in the Posts and Telegraphs Department who are over the age of 25 and under the age of 30 years on the 1st of August 1952, may, however, be admitted to the examination for recruitment to the Telegraph Engineering Service, Class I, provided they either hold substantively a permanent post and are recommended by the Director-General of Post and Telegraphs, or hold the following categories of temporary posts in the Posts and Telegraphs Department—(1) Repeater Station Assistants, (2) Foremen and Assistant Foremen, Telegraph Workshops, (3) Temporary Assistant Engineers, Workshops, and have been in continuous service in these posts for a period of not less than two years on the 1st of August, 1952 and are recommended by the Director-General of Posts and Telegraphs.

(b) (i) A candidate for the Signal Engineering and the Electrical Engineering Departments of the Superior Revenue Establishment of Indian Railways must have attained the age of 21 and must not have attained the age of 25 years on the 1st of August 1952.

(ii) Candidates already in Railway Service, who are over the age of 25 and under the age of 30 years on the 1st of August 1952 may, however, be admitted to the examination for recruitment to the Signal Engineering and the Electrical Engineering Departments of the Superior Revenue Establishment of Indian Railways, if they hold substantively a permanent post and are recommended by their department or Office.

(c) The upper age limit prescribed in sub-rules (a) (i), (ii) and (b) (i), (ii) above will be relaxed:—

(i) up to a maximum of three years if a candidate belongs to a Scheduled Caste or a Scheduled Tribe or is a *bona fide* displaced person from Pakistan, and

(ii) up to a maximum of six years if a candidate belongs to a Scheduled Caste or a Scheduled Tribe and is also a *bona fide* displaced person from Pakistan.

Note 1.—“Scheduled Castes” and “Scheduled Tribes” mean any castes, communities, races, sects, etc., notified as such by the President of India.

Note 2.—The age limits prescribed cannot be relaxed in favour of any candidate.

4. A candidate must satisfy the Commission that his/her character is such as to make him/her suitable for appointment to the Service/Department.

5. A candidate must have—

(a) passed Sections A and B of the Associate Membership Examination of the Institution of Engineers (India) or have any other educational qualification recognised by that institution as exempting from passing these sections, *vide* Appendix I; or

(b) obtained an engineering degree of one of the universities mentioned in Appendix II under the conditions prescribed in that appendix; or

(c) passed the Associateship Examination of the City and Guilds Institute (Imperial College of Science and Technology, South Kensington) in Civil Engineering; or

(d) passed the Honours Diploma Examination in Civil, Mechanical or Electrical Engineering of the Loughborough College, Leicestershire, provided the candidate has passed the common preliminary examination or has been exempted therefrom; or

(e) obtained the diploma in Mechanical or Electrical Engineering awarded by the Swiss Federal Institute of Technology, Zurich (Eidgenössische Technische Hochschule);

(f) passed the Final Grade Examination in Electrical Engineering Practice (Parts I and II)—(Examination No. 52) of the City and Guilds, London, if taken on or before 24-11-49.

Note.—In exceptional cases the Commission may on the recommendation of the Central Government or a State Government treat as qualified candidate, a candidate who, though he/she has not all or any of the qualifications prescribed in this rule, has passed examinations conducted by other Institutions of a standard which in the opinion of the Commission justifies his/her admission to the examination.

6. The examination will be conducted by the Commission in the manner prescribed in Appendix III.

7. No candidate shall be admitted to the examination unless he/she holds a certificate of admission from the Commission.

The decision of the Commission as to the eligibility or otherwise of a candidate for admission to the examination shall be final.

8. No recommendations except those invited in the form of application shall be taken into consideration. Any attempt on the part of a candidate to obtain support for his/her candidature by other means may disqualify him/her for admission.

9. Candidates must pay such examination fees as Government may prescribe (*See* Appendix IV). No claim for a refund of any of these fees will ordinarily be entertained, nor can they be held in reserve for any other examination or selection.

10. A candidate must be in good mental and bodily health and free from any physical defect likely to interfere with the discharge of his/her duties as an officer of the Service. A candidate who (after such physical examination as Government or the appointing authority as the case may be, may prescribe) is found not to satisfy those requirements will not be appointed. Only candidates who are likely to be considered for appointment will be physically examined.*

11. Officers recruited to the Indian Railway Service of Engineers, the Signal Engineering Department and the Electrical Engineering Department will be liable to serve in the Stores Department of the Superior Revenue Establishment or Indian Railways if and when required.

APPENDIX I.

List of Examinations recognised as exempting from Sections A and B of the Associate Membership Examination.

Aligarh University—B.Sc. (Eng.) from 1948; also degree prior to 1948 after a full three years' course.

Andra University—B.E. in Civil, Mechanical or Electrical Engineering from 1950.

Annamalai University—B.E. in Civil, Mechanical, Electrical or Chemical Engineering from April 1949.

Benares Hindu University—

B.Sc. in Engineering.

B.Sc. (Mining), B.Sc. (Met.)

Bombay University—B.E.

Calcutta University—B.E. in Civil, Mechanical or Electrical Engineering.

B.Met., B.E. (Met.)

East Punjab Engineering College, Roorkee—B.Sc. (Eng.).

Madras University—B.E.

Mysore University—B.E. in Civil, Mechanical or Electrical Engineering.

Osmania University, Hyderabad—B.E.

Patna University—B.Sc. (Eng.).

Poona University—B.E. in Civil, Mechanical or Electrical Engineering.

Punjab University—B.Sc. in Engineering.

Rajputana University—B.E. in Mechanical or Electrical Engineering.

Rangoon University—B.Sc. in Engineering.

Roorkee University—Degrees in Civil, Mechanical or Electrical Engineering.

Travancore University—B.Sc. in Engineering.

Bengal Engineering College—Associateship in Mechanical or Electrical Engineering.

College of Engineering and Technology, Bengal—

(1) B.M.E., B.E.E., B.Ch.E.; (2) Special Degree Examination up to April 1950; (3) Diplomas in Mechanical, Electrical or Chemical Engineering from 1941 onwards provided the candidate has passed the Intermediate Examination in Science of a recognized University with Mathematics, Physics and Chemistry.

*In order to prevent disappointment candidates are advised to have themselves examined by a Government Medical Officer of the standing of a Civil Surgeon before applying for admission to the examination. Particulars of the nature of the physical test to which candidates will be subjected before appointment and of the standards required can be had from the Commission.

College of Engineering, Guindy, Madras—Engineer Diploma in Civil, Mechanical or Electrical Engineering up to 1945.

Delhi Polytechnic—Diploma in Electrical or Mechanical Engineering of the All-India Council of Technical Education.

Indian Institute of Science, Bangalore—Certificate in Electrical Technology or Electrical Communication Engineering.

Indian School of Mines and Applied Geology, Dhanbad—Associateship Diploma from 1926.

MacLagan Engineering College—'A' Class Diploma in Honours Division (80 per cent or more marks) and First Division (65 per cent to 80 per cent) in Mechanical or Electrical Engineering from 1935, such proviso not being applicable to Diplomas obtained before 1935.

School of Military Engineering, Roorkee/Kirkee—(1) Corps of Engineers Officers' Degree Engineering; (2) Electrical and Mechanical Engineers Officers' Degree Engineering; (3) Corps of Engineers Officers' Supplementary Engineering Course for Military Officers up to 1953.

Thompson Civil Engineering College, Roorkee—Diploma in Civil Engineering (formerly Assistant Engineer's Certificate).

Adelaide University—B.E. in Civil, Mechanical or Electrical Engineering.

Birmingham University—B.Sc. in Civil, Mechanical or Electrical Engineering (Honours or Ordinary Degree).

Bristol University—B.Sc. in Civil, Mechanical or Electrical Engineering (Honours or Ordinary Degree).

Cambridge University—B.A. (Honours) in Mechanical Science Tripos.

Cape Town University—B.Sc. in Engineering.

Dublin University—B.A. I (Ordinary or with Honours in Engineering).

Durham University—B.Sc. in Civil, Mechanical or Electrical Engineering or Naval Architecture (Honours or ordinary Degree).

Edinburgh University—B.Sc. in Engineering.

Glasgow University—B.Sc. in Engineering.

Leeds University—E.Sc. in Civil, Mechanical or Electrical Engineering (Honours or Ordinary Degree).

Liverpool University—B.Eng. in Civil, Mechanical, Electrical or Marine Engineering or Naval Architecture (Honours or Ordinary Degree).

London University—B.Sc. (Internal or External Degree) Engineering (not including Metallurgy) (Honours or ordinary Degree).

B.Sc. (Internal) in Engineering (Mining) obtained in or after 1926.

B.Sc. (External) in Engineering (Mining) (Honours Degree) obtained in or after 1935.

Manchester University—Certificate in Technology in Mechanical or Electrical Engineering.

McGill University, Montreal—B.Sc. in Civil, Mechanical, Electrical, Metallurgical or Mining Engineering (Honours or ordinary Degree).

Melbourne University—B.C.E., B. Mech. E. or B.E.E.

National University of Ireland—B.E.

New Zealand University—B.E. in Civil, Mechanical or Electrical Engineering.

Oxford University—B.A. with Honours in Engineering Science, Final Honours School.

Queens University, Belfast—B.Sc. in Engineering.

Queensland University—B.E. in Civil, Mechanical or Electrical Engineering.

Sheffield University—

B. Eng. in Civil, Mechanical or Electrical Engineering (Honours or Ordinary Degree with a First Class will not be required for degrees obtained in or after June 1930).

B.E. (Mbt.) (Honours Degree).

South Africa University—B.Sc. in Engineering till 1921.

St. Andrews University—B.Sc. in Engineering.

Sydney University—B.E. in Civil or Mechanical and Electrical Engineering.

Victoria University, Manchester—

B.Sc. (Tech.) (Ordinary Course, Divisions I and II) in Electrical Engineering.

B.Sc. (Tech.) (Higher Course, Honours, or Ordinary Course, Division I) in Municipal Engineering.

B.Sc. (Tech.) Ordinary Degree obtained in or after 1930) in Municipal Engineering.

B.Sc. (Tech.) (Ordinary Course, Division I) in Mechanical Engineering.

B.Sc. in Engineering (Honours or Ordinary Degree) from 1925.

B.Sc. (Tech.) in Mechanical or Electrical Engineering (Honours in Final Examination).

Wales University—B.Sc. in Civil, Mechanical or Electrical Engineering.

Western Australia University—B.E.

Witwatersrand University, Johannesburg—B.Sc. in Civil, Mechanical or Electrical Engineering.

City and Guilds College, Kensington—A.C.G.I.

City and Guilds of London Institute, Technical College, Finsbury—Diploma or Higher Certificate (three years' course if taken by matriculated students or students who have passed the Institution Studentship Examination or its recognized equivalent).

Fraraday House, London—Diploma in Electrical Engineering provided it is obtained by actually passing the examination.

Heriot-Watt College, Edinburgh—Associateship in Electrical Engineering.

Kings College, London—Diploma in Engineering.

Naval Officer's Examination which qualifies as Lieutenant (E).

Royal Naval College, Greenwich—Professional Certificate for Constructors.

Royal Technical College, Glasgow—Final Diploma Examination in Mechanical or Electrical Engineering provided an approved Matriculation Examination has been passed before beginning the course.

University College, London—Diploma in Engineering.

Institution of Civil Engineers—Sections A and B of the Associate Membership Examination.

Institution of Mechanical Engineers—Sections A and B of the Associate Membership Examination.

Institution of Electrical Engineers—Sections A and B of the Associate Membership Examination.

List of Diplomas and Degrees of American Engineering Institutions the curricula of which have been accredited by the Engineers' Council for Professional Development, New York, and which are recognised by the Institution of Engineers (India) for exemption from Sections A and B of their Associate Membership Examination. The diplomas and Degrees should have actually been taken after a full course of studies for not less than three years in such Institutions, any period of exemption granted by the Institutions being included in reckoning these three years. *

(SUBJECT TO PERIODIC REVISION.)

Akron, University of—Electrical, Mechanical (industrial and aeronautical options) c

Alabama, Polytechnic Institute—Civil, Electrical, Mechanical.

Alabama, University of—Aeronautical, Civil, Electrical, Industrial, Mechanical, Mining.

Alaska, University of—Civil, Mining (including Metallurgical and Geological options).

Arizona, University of—Civil, Electrical, Mechanical, Mining.

Arkansas, University of—Civil, Electrical, Mechanical, Brooklyn, Polytechnic Institute of—Chemical (day and 8-years evening) Civil a, Electrical a, Mechanical a.

Brown University—Civil, Electrical, Mechanical.

Bucknell University—Chemical, Civil, Electrical, Mechanical.

California Institute of Technology—Aeronautical (5-and 6-years courses), Chemical (5-years course), Civil, Electrical, Mechanical.

California, University of—Civil, Electrical, Mechanical, Metallurgical (Metallurgy), Mining, Petroleum.

Carnegie Institute of Technology—Chemical (c-r) Civil, Electrical a.c-r, Industrial (management) (a.c-r), Mechanical a.c-r, Metallurgical a-r.

Case Institute of Technology—Chemical, Civil, Electrical, Mechanical, Metallurgical.

- Catholic University of America—Aeronautical, Architectural, Civil, Electrical and Mechanical.
- Cincinnati, University of—Aeronautical c, Chemical c, Civil c, Electrical c, Mechanical c.
- Citadel, The :—Civil.
- Clarkson College of Technology—Chemical, Civil, Electrical, Mechanical.
- Clemson Agricultural College—Civil, Electrical, Mechanical.
- Colorado School of Mines—Geological, Metallurgical, Mining, Petroleum.
- Colorado, State College—Civil, Electrical, Mechanical.
- Colorado, University of—Architectural, Civil, Electrical Mechanical (includes aeronautical option).
- Columbia University—Chemical (b), Civil (b), Electrical (b), Industrial (b), Mechanical (b), Metallurgical (b), Mining.
- Connecticut, University of—Civil, Electrical, Mechanical.
- Cooper Union School of Engineering—Chemical (d), Civil (d), Electrical (d), Mechanical (d).
- Cornell University—Chemical, Civil, Electrical, Industrial (Administrative), Mechanical.
- Dartmouth College—Civil.
- Delaware, University of—Chemical, Civil, Electrical, Mechanical.
- Denver, University of—Electrical.
- Detroit, University of—Aeronautical (c-r), Architectural (c-r), Chemical (c-r), Civil (c-r), Electrical (c-r), Mechanical (c-r).
- Drexel Institute of Technology—Chemical (c-r), Civil (c-r), Electrical (c-r), Mechanical (c-r).
- Duke University—Civil, Electrical, Mechanical.
- Florida, University of—Chemical, Civil Electrical, Industrial, Mechanical.
- George Washington University—Civil, Electrical, Mechanical.
- Georgia School of Technology—Aeronautical, Ceramic (c-r), Chemical (including Co-operative Curriculum) (c-r), Civil, (c-r), Electrical (c-r), Mechanical (c-r).
- Harvard University—Civil, Communication, Electrical, Industrial (engineering and business administration) Mechanical, Metallurgical (Physical Metallurgy), Sanitary.
- Idaho, University of—Civil, Electrical, Mechanical, Metallurgical (Metallurgy), Mining (includes Geographical Option).
- Illinois Institute of Technology—(Armour College of Engineering) (g)—Chemical, Civil, Electrical, Mechanical.
- Illinois, University of—Architectural, Ceramic (Technical option), Chemical, Civil, Railway, Civil, Electrical, Railway Electrical General (i), Mechanical, Railway Mechanical, Metallurgical Mining.
- Iowa State College—Agricultural, Architectural, Ceramic Chemical, Civil, Electrical General, Mechanical.
- Iowa, State University of—Chemical, Civil, Electrical, Mechanical.
- Johns Hopkins University—Chemical, civil, electrical, mechanical.
- Kansas State College—Agricultural, architectural, civil, electrical, mechanical.
- Kansas, University of—Architectural, civil, electrical, mechanical, mining.
- Kentucky, University of—Civil, electrical, mechanical, metallurgical, mining.
- Lafayette College—Civil, electrical, industrial (administrative), mechanical, metallurgical, mining.
- Lehigh University—Chemical, civil, electrical industrial, mechanical, metallurgical, mining.
- Louisiana State University—Chemical, civil, electrical, mechanical, petroleum.
- Louisville, University of—Chemical (c-r), civil (c-r), electrical (c-r), mechanical (c-r).
- Maine, University of—Civil, electrical, general, mechanical.
- Manhattan College—Civil, electrical.
- Marquette University—Civil (c), electrical (c), mechanical (c).
- Maryland, University of—Chemical, civil, electrical, mechanical.
- Massachusetts Institute of Technology—Aeronautical building and construction, chemical, civil (includes in option sanitary engineering electrical, general, industrial (business and engineering administration), mechanical (metallurgy), naval architecture and marine engineering (including marine transportation).
- Michigan College of Mining and Technology—Chemical, civil, electrical, mechanical, metallurgical, mining.
- Michigan State College—Civil, electrical, mechanical.
- Michigan, University of—Aeronautical, chemical, civil, electrical, engineering mechanics, mechanical, metallurgical, naval architecture and marine engineering transportation.
- Minnesota University—Aeronautical, chemical, civil, electrical, mechanical, metallurgical, mining petroleum.
- Mississippi State College—Civil, electrical, mechanical.
- Missouri School of Mine and Metallurgy—Ceramic, civil, electrical, metallurgical, mining (mine) (including petroleum option).
- Missouri, University of—Chemical, civil, electrical, mechanical.
- Montana School of Mines—Geological, metallurgical, mining.
- Montana State College—Civil, electrical, mechanical.
- Nebraska, University of—Agricultural, architectural civil, electrical, mechanical.
- Nevada, University of—Electrical, (mechanical) mining.
- New Hampshire, University of—Civil, electrical, mechanical.
- New Mexico College of Agricultural and Mechanic Arts—Civil, electrical, mechanical.
- New Mexico School of Mines—Geological mining, petroleum.
- New Mexico, University of—Civil, electrical, mechanical.
- New York, College of the City of—Civil, electrical, mechanical a.
- New York State College of Ceramics—(at Alfred University)—Ceramic.
- New York University—Aeronautical, chemical (day and 7 year's evening), civil a, electrical a, industrial a, (Administrative), mechanical.
- Newark College of Engineering—Civil (c-r), electrical, (c-r), mechanical (c-r).
- North Carolina State College—Ceramic, civil, electrical, mechanical.
- North Dakota Agricultural College—Architectural mechanical.
- North Dakota, University of—Civil, electrical, mechanical, mining.
- Northeastern University—Chemical c, civil c, electrical c, industrial c, mechanical c.
- Northwestern University—Chemical, civil, electrical, mechanical.
- Norwich University—Civil, electrical.
- Notre Dame, University of—Aeronautical, civil, electrical, mechanical, metallurgical (metallurgy).
- Ohio State University—Ceramic, chemical, civil, electrical, industrial, mechanical, metallurgical, mining (mine).
- Oklahoma Agricultural and Mechanical College—Civil, electrical, industrial, mechanical.
- Oklahoma, University of—Architectural, chemical, civil, electrical, mechanical, petroleum.
- Oregon State College—Chemical, civil, electrical, mechanical.
- Pennsylvania State College—Architectural, Ceramic (Ceramics), Chemical, civil, electrical, fuel technology, industrial, mechanical, metallurgical (metallurgy), mining, petroleum and natural gas, sanitary.
- Pennsylvania, University of—Chemical, civil, electrical, mechanical.
- Pittsburgh, University of—Chemical (c-r), civil (c-r), electrical (c-r), industrial (c-r), mechanical, metallurgical (c-r), mining (c-r), petroleum (c-r).
- Pratt Institute—Electrical, mechanical.
- Princeton University—Chemical, civil, electrical, mechanical.
- Purdue University—Aeronautical, chemical, civil, electrical, mechanical, metallurgical.
- Rensselaer Polytechnic Institute—Aeronautical, chemical civil, electrical, industrial, mechanical, metallurgical.

Rhode Island State College.—Civil, electrical, mechanical.
 Rice Institute.—Chemical, civil, electrical, mechanical.
 Rochester University of.—Chemical, mechanical.
 Rose Polytechnic Institute.—Civil, electrical, mechanical.
 Rutgers University.—Civil, electrical, mechanical, sanitary.
 Santa Clara, University of.—Civil, electrical, mechanical.
 South Carolina University.—Civil, electrical.
 South Dakota State College.—Civil, electrical, mechanical.
 South Dakota State School of Mines.—Civil, electrical, general, metallurgical, mining.

Southern California, University of.—Civil, electrical, mechanical, petroleum.

Southern Methodist University.—Civil (c-r), electrical (c-r), mechanical (c-r).

Stanford University.—Civil, electrical, mechanical, metallurgical, mining, petroleum.

Stevens Institute of Technology.—General.

Swarthmore College.—Civil, electrical, mechanical.

Syracuse University.—Chemical, civil, electrical, industrial, administrative, mechanical.

Tennessee, University of.—Chemical, civil, electrical, mechanical.

Texas Agricultural and Mechanical College of.—Aeronautical chemical, civil, electrical, mechanical, petroleum (4 and 5 years courses).

Texas College of Mines and Metallurgy.—Mining (mining option, mining geology, metallurgy option).

Texas Technological College.—Civil, electrical, mechanical.

Texas, University of.—Architectural, chemical, civil, electrical, mechanical, petroleum (petroleum production).

Toledo, University of.—General (c-r-f).

Tufts College.—Civil, electrical, mechanical.

Tulane, University of Louisiana.—Civil, electrical, mechanical.

Tulsa, University of.—Petroleum (including options in refining and production) (c-r).

Union College.—Civil, electrical.

United States Coast Guard Academy.—General f.

Utah State Agricultural College.—Civil.

Utah, University of.—Civil, electrical, mechanical, metallurgical, mining.

Vanderbilt University.—Civil, electrical, mechanical.

Vermont, University of.—Civil, electrical, mechanical.

Villanova College.—Civil, electrical, mechanical.

Virginia Military Institute.—Civil, electrical.

Virginia Polytechnic Institute.—Ceramic, chemical, civil, electrical, industrial, mechanical.

Virginia, University of.—Chemical, civil, electrical, mechanical.

Washington, State College of.—Architectural, Civil, electrical, mechanical (basic option) metallurgical, mining.

Washington University.—Architectural, civil, electrical, industrial (administrative), mechanical.

Washington, University of.—Aeronautical, ceramic, chemical, civil, electrical, mechanical, metallurgical, mining.

Wayne University.—Civil, electrical, mechanical.

Webb Institute of Naval Architecture.—Naval architecture and marine engineering.

West Virginia University.—Civil, electrical, mechanical, mining.

Wisconsin, University of.—Chemical, civil, electrical, mechanical, metallurgical, mining.

Worcester, Polytechnic Institute.—Chemical, civil, electrical, mechanical.

Wyoming, University of.—Civil, electrical, mechanical.

Yale University.—Chemical, civil, electrical, mechanical, metallurgical (metallurgy).

Capital Radio Engineering Institute. (Washington, D. C.):—Residence course in practical radio engineering, correspondence, course in practical radio engineering.

Franklin Technical Institute (Boston, Mass):—Industrial electricity.

Wentworth Institute (Boston, Mass):—Machine construction and tool design, steam and diesel engineering, architectural construction, electrical construction.

Explanatory Notes.

*With the exception of the chemical engineering curricula this list is corrected to October 24, 1947, and is subject to continual revision. It applies only to curricula which have been inspected by the committee on engineering schools, whether conducted on the usual plan of operation or on the accelerated plan. At the request of the council of the American Institute of Chemical Engineers, due to the effects of the war upon education in Chemical engineering, all accrediting of chemical engineering curricula ceased with the 1943 list. Until such time as reasonably normal educational activities in the chemical engineering fields have been resumed and re-examinations made no current list for this division of engineering will be published.

(a) Accrediting applies to the day and evening curricula.

(b) Accrediting applies to the 4-year and 5-year curricula leading to the bachelor of science degree.

(c) Accrediting applies to the co-operative curriculum only.

(c-r) Accrediting applies to both the co-operative and regular curricula.

(d) Accrediting applies to day and to 6-year evening curricula in the Cooper Union School of Engineering as submitted to ECPD.

(e) Accrediting applies only to curriculum as submitted to ECPD, and upon completion of which a certificate is issued by Harvard University certifying that the student has pursued such a curriculum.

(f) The accrediting of a curriculum in general engineering implies satisfactory training in engineering sciences and in the basic subjects pertaining to several fields of engineering; it does not imply the accrediting, as separate curricula, of those component portions of the curriculum such as civil, mechanical or electrical engineering, that usually are offered as complete professional curricula, leading to degrees in these particular fields.

(g) On July 24, 1940, Illinois Institute of Technology was formed by the consolidation of Armour Institute of Technology and Lewis Institute. Curricula now listed under Illinois Institute of Technology were listed under Armour Institute of Technology before October, 24, 1940.

APPENDIX II

List of University degrees which will be recognised for admission to the examination (vide paragraph 5 (b).]

Cambridge.—Ordinary degree B. A. in Engineering provided the graduate has passed in the principal subjects, Engineering I, Engineering II and Engineering III.

Glasgow.—B. Sc. in Naval Architecture (Honours or Ordinary degree).

Durham.—B.Sc. in Marine Engineering.

Aberdeen.—B. Sc. Engineering (Honours or Ordinary degree).

Note.—The above degrees will be accepted only if taken after three years study and the passing of the regular examinations in the several Universities. The conditions as to these years study will not, however, apply to Indians who having taken an Indian degree, which exempt them from part of the University course, shall have taken one of the above degrees in less than three years in accordance with the regulations of the University concerned.

APPENDIX III.

The subjects of the Examination will be as follows:

A. *The Indian Railway Service of Engineers*—

Subjects	Marks
(a) <i>Compulsory</i> —	
(1) English (including Essay and Precis writing).	100
(2) General Knowledge	100

List of Accredited Curricula of Technical Institute Type.

Academy of Aeronautics (La Guardia Field, N. Y.):—Air craft design and construction (resident full-time programs and resident part-time evening programmes) aircraft mechanics and maintenance (resident full-time programs and resident part time evening programmes).

Aeronautical Institute (Hawthorne, Calif):—Electrical engineering.

Aeronautical University, The (Chicago, Ill):—Aeronautical engineering drafting.

Bliss Electrical School (Washington, D. C.):—Fundamentals of Industrial electrical engineering.

Subjects	Marks
(3) Applied Mechanics (including Strength of Materials and Theory of Structures).	200
(4) Construction :	
<i>Paper I—</i>	
(i) Building Materials and Building Construction.	100
(ii) Design of Structures	
<i>Paper II—</i>	
Roads, Railways (General principles governing the design of Railways, Roads, Harbours and other works).	100
(5) Surveying ...	100
(6) Sanitary Engineering and Water supply.	100
(7) <i>Viva Voce</i> and Personality Test ...	300
Total ...	1,100

(b) *Optional*.—Any two of the following subjects—

(1) Prime movers ...	100
(2) Hydraulics and Hydraulic Machines	100
(3) Electrical Engineering	100
(4) Architecture and Town Planning	100
(5) Mechanical Engineering	100

B. *Electrical Engineering Department*.—(a) *Compulsory*—

(1) English. (Including Essay and Precis writing).	100
(2) General Knowledge	100
(3) Electrical Engineering	200
(4) Mechanical Engineering	200
(5) Applied Mechanics (including strength of Materials and Theory of Structures).	200
(6) <i>Viva Voce</i> and Personality Test	300
Total ...	1,100

(b) *Optional*.—Any two of the following subjects:

(1) Physics (including Electricity and Magnetism).	100
(2) Applied Mathematics	100
(3) Surveying	100
(4) Electrical Communication Engineering	100

C. *Signal Engineering Department*.—(a) *Compulsory*—

(1) English (including Essay and Precis writing).	100
(2) General Knowledge	100
(3) Electrical Engineering	100
(4) Electrical Communication Engineering	200
(5) Mechanical Engineering	200
(6) <i>Viva Voce</i> and Personality Test	300
Total ...	1,000

(b) *Optional*.—Any two of the following subjects:—

(1) Prime Movers	100
(2) Physics (including Electricity and Magnetism).	100
(3) Applied Mechanics (including strength of Materials and Theory of Structures).	100
(4) Applied Mathematics	100
(5) <i>Construction</i> —	

Paper I.—

(i) Building Materials and Building construction.	50
(ii) Design of Structures	

Paper II.—

Roads, Railways (General Principles governing design of Railways, Roads, Harbours and other works).	50
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D. and E. *The Central Engineering Service Classes I and II Compulsory*—

(1) English (including Essay and Precis writing).	100
(2) General Knowledge	100
(3) Applied Mechanics (including Strength of Materials and Theory of Structures).	200

Subject	Marks
(4) <i>Construction</i> —	
<i>Paper I</i> —	
(i) Building Materials and Building Construction.	100
(ii) Design of Structures	
<i>Paper II</i> —	
(i) Roads, Railway (General Principles governing the design of Railways, Roads, Harbours and other works).	100
(5) Surveying	100
(6) Sanitary Engineering and Water Supply	100
(7) <i>Viva voce</i> and Personality Test	300
Total ...	1,100

Optional.—(Any two of the following subjects)—

(1) Prime Movers	100
(2) Hydraulics and Hydraulic Machines...	100
(3) Electrical Engineering	100
* (4) Architecture and Town Planning	100
(5) Mechanical Engineering	100

* (This subject is not to be offered by candidates for C.E.S. Class II).

F. *Telegraph Engineering Service Class I.*(a) *Compulsory*—

(1) English (including Essay and Precis writing).	100
(2) General Knowledge.	100
(3) Electrical Communication Engineering	150
(4) Electrical Engineering	150
(5) Applied Mathematics	100
(6) Applied Mechanics (including Strength of Materials and Theory of Structures).	100
(7) <i>Viva voce</i> and Personality Test	300
Total ...	1,000

(b) *Optional*.—Any one of the following subjects:—

(1) Prime Movers	100
(2) Physics (including Electricity and Magnetism).	100
(3) Mechanical Engineering	100

Notes to Appendix III.

A candidate who takes Surveying as a subject must produce a certificate that he/she has undergone satisfactory training in Surveying including practical surveying in a college or institution recognised by the Commission for the purpose of admission to the competitive examination for the Service. The training must be equivalent to that given in the full course for a degree or diploma in Civil Engineering. The certificate must be signed by the Principal of, or the head of the department of Surveying in, the college or institution.

For this purpose the Commission will ordinarily accept a certificate from any college or institution mentioned in paragraph 5 of the compendium or in Appendices I and II, or from any college which is affiliated to any University mentioned in the same paragraph and Appendices. The Commission, however, reserve to themselves the power not to accept any certificate if they are satisfied that the practical training referred to therein falls short of the requirements of the Service, and their decision in the matter will be final.

2. The standard and syllabus of the examination will be such as the Commission shall prescribe and the Commission shall, if they think it desirable, determine what shall be the qualifying marks in all or any of the subjects of the examination.

If owing to the large number of candidates appearing, the Commission consider it impracticable to examine all candidates in *viva voce* and personality test, the Commission may, in their discretion, after the written marks have been compiled, summon for *viva voce* and personality test only those candidates who have obtained in the written test the qualifying mark which may be prescribed by the Commission.

No candidate will be considered to have qualified at the examination unless he/she obtains at least :—

(1) 40 per cent of the total marks for the compulsory subjects, excluding *viva voce* and personality test and (2) 35 per cent of the total marks for the *viva voce* and personality test.

3. From the marks assigned to candidates in each subject such deduction will be made as the Commission may consider necessary in order to secure that no credit is allowed for merely superficial knowledge.

4. If a candidate's handwriting is not easily legible, a deduction, will be made on this account from the total marks otherwise accruing to him/her.

5. Credit will be given for good English including orderly, effective and exact expression combined with due economy of words in all subjects of the examination and not only in subjects which are specially devoted to English.

6. Special attention will be paid in the *viva voce* and personality test to assessing the candidates' capacity for leadership, initiative and intellectual curiosity, tact and other social qualities, mental and physical energy, powers of practical application and integrity of character.

APPENDIX IV.

Fees.

Candidates must pay the following fees—

A. To the Commission—

(i) Re. 1 when asking for application forms and connected documents. This amount should be remitted to the Commission by Money Order. Local candidates may pay cash at the counter.

(ii) Rs. 8-1-0 (Rs. 19-10-0 in case of candidates belonging to Scheduled Castes or Scheduled Tribes) with the completed application form. This amount should be paid by sending a treasury receipt or CROSSED Indian Postal Orders payable to the Secretary. Union Public Service Commission.

NOTE 1—The Commission cannot accept any payments not made in the manner indicated above.

NOTE 2—The Commission may at their discretion remit the prescribed fee where they are satisfied that the applicant is a *bona fide* displaced person and is not in a position to pay the prescribed fee. The fee of Re. 1 must, however, be paid even by a displaced person when asking for forms. This amount will be refunded to him/her if on receipt of his/her application, his/her claim to be a displaced person is accepted by the commission and his/her fee is remitted.

B. To the General Manager of the Railway concerned—Rs. 16 before examination by a Medical Board (only for candidates being considered for appointment).

No claim for a refund of these fees will ordinarily be entertained nor can they be held in reserve for any other examination or selection.

A refund of Rs. 75 (Rs. 18-12-0 in the case of candidates belonging to the Scheduled Castes or Scheduled Tribes) will, however, be allowed to a candidate who has paid the consolidated fee of Rs. 82-8-0 (Rs. 20-10-0 in the case of candidates belonging to the Scheduled Castes or Scheduled Tribes) but who is not admitted to the examination by the Commission.

Standard and Syllabus.

The standard of papers in English and General Knowledge will be such as may be expected of an Engineering Graduate. The standard of papers in other subjects will approximate to that of an Engineering Degree examination of an Indian University. There will be practical examination in any of the subjects.

All answers must be written in English.

1. ENGLISH.—Questions to test the understanding of and the power to write English. Passages will usually be set for summary or precis.

2. GENERAL KNOWLEDGE.—Including knowledge of current events and of such matters of every day observation and experience in their scientific aspects as may be expected of an educated person who has not made a special study of any Scientific subject. The paper will also include questions on Indian History and Geography of a nature which candidates should be able to answer without special study.

3. APPLIED MATHEMATICS.

Statics.—Vectors, Notion of force, Gravitational or Engineer's unit of force. Various kinds of forces. Friction: Composition and resolution of concurrent forces. Moments. Parallel forces and centres of gravity, couples. Conditions of equilibrium of non-current coplanar forces. Funicular Polygon.

Kinematics.—Units of space and time. Rectilinear motion; motion of a projectile; angular motion; relative motion, simple harmonic motion.

Kinetics.—Newton's Laws. Absolute system of units. Linear momentum. Impact of elastic bodies. Impulse and impulsive forces. Angular momentum; moments of inertia and radii of gyration; impulsive torque. Centrifugal forces. Conical pendulum. Motion of the centre of mass. Cant on railway curves and banking of road-tracks. Hoop stress and stress in the rim of a fly-wheel.

Work, power, kinetic and potential energy. Principle of energy. Kinetic energy due to rotation. Works done by a couple. Principle of Virtual work. Simple machines, mechanical advantage, and velocity ratio. Stable and unstable equilibrium. Deflection in a framed structure. Oscillations. Simple and Compound pendulum. Units and dimensions.

Hydrostatics.—Fluid pressure, its transmission, and measurements, density; specific gravity; metric system of units; resultant pressure; centre of pressure; equilibrium of floating bodies; metacentre. Laws of Boyle and Charles. Mixture of gases. Nature and action of simple hydraulic machines.

4. APPLIED MECHANICS.

(a) Buildings.

Consideration of materials used in the construction of roof-trusses. Steel and timber. Determination of stresses in trusses by various methods. Dead-loads and wind pressure. Factors of safety and working stresses.

Design of roof-trusses. Various types of roof-trusses and roof coverings; collar beam and hammer beam trusses.

Use of Euler's, Gordon's, Rankine's, Fidler's, Johnson's and straight line formulæ in the design of struts. Buckling factor of struts; curves showing comparative strength of struts obtained by various formulæ. Choice of size of sections. Finish of steel work. Joints. Design of end bearings; methods of fixing and supporting ends.

Application of circle and ellipse of stress and Clapeyorn's theorem to design of structures.

Cast Iron and Steel Columns.—Flange and web connections to steel columns; caps; bases; transverse bracing of columns.

Foundations.—Safe pressures; foundations for columns. Slab foundations; cantilever foundations; Grillage foundations. Wells. Piles.

Retaining Walls and earth pressures.—Rankine's theory, Wedge theory, Winker's and Bligh's graphical constructions, with corrections. Design of various types of retaining walls in masonry.

Tall Masonry and steel Chimneys.—Theory and design.

Design of steel and masonry.—Reservoirs with considerations of wind pressures.

Deflection of framed structures and determination of stresses, etc., in redundant frames.

Influence diagrams for bending moment and shear for uniformly distributed and irregular loads on trusses, built-in-beams, and three-pinned, parabolic, semi-elliptic and semicircular arches.

General principles of dome design.

Principles of Buildings Design: consideration of loads on buildings. Steel Works, girders, etc., for buildings.

(b) Bridges.

Design of superstructure. Determination by graphical and analytical methods of bending moment due to moving loads. Wind pressures.

Design of masonry bridges and culverts.

Plate-web girders. Analysis of stresses.

Warren and lattice girders.

Three-pinned arches; doubly pinned and rigid arches.

General considerations on the design of suspension, cantilever, and tabular bridges. Steel-arched bridges. Swing bridges.

(c) *Reinforced Concrete.*

Shear, bond and diagonal tension, its nature, evaluation and location of reinforcement.

Design of simple and doubly reinforced beams and continuous beams.

Theory and design of reinforced concrete columns and piles.

Design of slab foundations.

Design of simple cantilever and counterfort retaining walls.

Equivalent moments of inertia for reinforced concrete sections.

Theory of elastic deflections and outline of investigation of stresses in reinforced concrete arches.

(d) *General.*

Analysis of stress, analysis of strain, elastic limit and ultimate strength. Relation between the elastic constants. Launhardt-Weyrauch formula for working stresses in a structural member and determination of its cross-sectional area. Repetition of stresses. Bending moment and shearing force diagrams for dead loads. Graphical determination of stresses in frames; effect of wind pressure; method of sections. Stress in the cross section of a beam due to bending ($M/I \cdot y/E/R$): compound and conjugated stresses. Rankin's theory of earth pressure; depth of foundations; and strength of footings. Grillage foundations; Coulumb's theory of earth pressure; modification due to Rebahn.

Bending moment and shearing force diagrams for life loads. Analysis of uniform and uniformly varying stress. Elastic theory of bending of beam; bending and shear stresses in beams. Modulus of section and equivalent areas. Maximum and minimum stresses in a joint due to eccentric loading. Stresses in dams and chimneys. Stability of block-work structures. Design of revetted joints and stresses in boiler shells. Euler's theory concerning struts; modifications due to Rankine, Gordon and others. Torsion. Combine torsion and bending deflections. Encastre beams. Continuous beams and theorem of three moments. Elastic theory of arches. Masonry arches.

5. ELECTRICAL ENGINEERING.

Direct Current.—Principles of generators and motors. Types and characteristics. Starting and controlling appliances. Methods of testing of generators and motors. Operation in parallel of direct current generators. Types and general features of primary batteries. Testing of primary batteries. Types and testing of storage batteries. Method of charging. Boosters and other auxiliary appliances.

Alternating Currents.—Production of alternating currents. Frequency and wave shape. Graphic representation of current, voltage and power in A. C. Circuits. Maximum and "R.M.S. Value" of simple sine wave. Effect of resistance inductance and capacity in A. C. circuit. Power and power factor in A. C. circuit. Single phase and poly-phase currents. Connections of poly-phase systems. Power Measurement in poly-phase circuits. Theory of alternator and its regulation. Parallel running. Theory of transformer. Transmission of poly-phase currents. Synchronous motors and Induction motors. Methods of starting. Efficiency and characteristics. Circle diagrams and testing of motors. Improvement of power factor. Motor converter and rotary converter and methods of starting of rotary converter. Principle of automatic voltage regulator.

Electrical Instruments and Measurements.—Principles of construction and theory of measuring instruments for direct and alternating currents. Commercial types. Calibrations of instruments. Measurements of resistances. Ohmmeters. Types of bridges for measuring resistances. Potentiometer. Phase and frequency meters. Synchronoscope. Types of Wattmeter.

Transmission and Distribution of Electrical Energy.—Systems of supply. Economic voltage and size of conductor. Formulae for determination of size of conductor for standard

systems of distribution, the load, voltage etc., being given. Factors influencing voltage drop in D.C. and A.C. transmission lines. Influence of power factor of the load on voltage regulation of a transmission line. Standard equipment on generator and motor control panels for different types of D.C. and A.C. generators and motors.

6. PHYSICS INCLUDING ELECTRICITY AND MAGNETISM.

Heat.—The methods of calorimetry and thermometry. Vapour pressures, critical temperature and pressure. Conduction and diffusion of heat and the determination of constants. Radiation and absorption; laws of cooling. Theory of exchanges; methods of measuring radiation, laws of thermodynamics; simple applications.

Light.—Velocity of light. Illumination; photometry. Achromatism in lens system; direct-vision spectroscopy.

The wave theory; simple interference phenomena. Huygen's principle, explanation of straight line propagation, reflection, and refraction of light. Action of mirror, lenses, etc., reviewed from this standpoint. Simple diffraction phenomena. Gratings and wave-lengths determination. Spectrum analyses; Doppler's principle. Double refraction and polarization of light; rotary polarization; simple application.

Magnetism.—Forces on a magnet in a magnetic field. Determination of axes and moment of magnet. Magnetic potential, level surfaces. Interaction of two short magnets; determination of field strength. Magnetic shell; its potential energy in magnetic field. Total normal induction, Gauss' theorem; number of lines of force. Magnetic induction in iron, etc. Theory of magnetism.

The magnetic field of the earth; the elements and their variations; the compass and its corrections.

Electricity.—Electric capacity; specific inductive capacity. Distribution of electricity on surface of conductors; images. Value of electric force in simple cases of distribution. The mechanical force on charged conductors, energy of electrified systems. The dielectric medium dielectric displacement currents.

Wheatstone's bridge, specific resistance; resistance thermometers. Conductivity of electrolytes; ionization; migration phenomena; accumulators. Standard cells; the potentiometer system of measurement. Thermo-electricity, application of thermo-dynamics; thermo-electric diagrams. Electro-magnetic induction; coefficients of induction; induction coils. Energy of circuit carrying current when placed in a magnetic field; mechanical force on conductors carrying current; moving coil instruments. Lenz's law; illustration from dynamos and motors, etc. Determination of current resistance; E.M.F. in absolute measure. The discharge of a condenser; electric waves. Elementary theory of the electron.

The elementary theory of the continuous current dynamo and motor and of the alternating current dynamo. General principles of the application of electricity to lighting power; transmission; telegraphy, etc.

Sound.—The transmission of energy through material media by wave-motion; speed of propagation of waves of permanent type. Nature of musical sounds; pitch; scales. Reflection and refraction of sound; influence of wave-length. The vibration of strings, bars, plates and gas columns, resonance. Interference and diffraction phenomena. Analysis of sound. Measurement of wave-length, velocity and pitch.

7. PRIME MOVERS.

Fuel Gas Plants and Boilers—

Fuel—

(a) Coal, wood, petroleum, gas, petrol, alcohol, etc., physical characteristics, approximate chemical composition; heat of combustion.

(b) Gas Plants.—Gas producers; pressure and suction plants; arrangement and working.

(c) Boilers.—Draught; natural forced and induced. Ordinary forms of stationery, locomotive, marine, water-tube, and other type; heating surface, firegrate area; boiler efficiency; superheaters; feedwater heaters; accessories and management.

Theory of Heat Engines—

(a) Thermodynamical principles; Carnot's cycle perfect heat engine; second law.

- (b) Air engines.—Stirling and other forms.
- (c) Internal Combustion Engines.—Gas, oil and petrol engines; types and working; features of cycles. Proportioning of mixtures; efficiencies.
- (d) Steam.—Thermodynamics of the generation, expansion and condensation of steam; heat diagrams, etc.
- (e) Steam Engines and turbines, with special reference to modern developments.

(f) Refrigerating Plants.—Theory and general arrangement of the more common types.

(g) Air Compressors.—Theory of pneumatic working.

Generating Plants, Accessories and Details—

(a) General arrangements and construction of the more important types.

(b) Condensers, air-pumps, circulating pumps, cooling tanks, etc.

(c) Carburettors and systems of ignition.

(d) Cylinders, pistons cross heads, guides connecting rods, cranks, governors, fly-wheels, valves, and valve gears, glands and pipes.

(e) Engine-Testing.—Consumption of steam and fuel, gas and oil; brakes and dynamometers; indicators and indicator diagrams.

8. HYDRAULICS AND HYDRAULIC MACHINES.

Hydraulics.—Definitions relating to flow of water streamline motion. Bernoulli's theorem, Venturimeter.

Flow of water through small and large orifices; drowned orifices; sudden enlargements and contractions in flow of water. Time of emptying tanks. Flood absorptive capacity of tanks.

Flow of water over notches and weirs.

Flow of water through pipes; hydraulic gradients; losses of head due to bends, contraction and sudden enlargements; losses of head through siphons. Impacts at bends and thrust blocks.

Flow of water in open channels and in pipe; Chezy Basin, Kutters and other formulae and their applications; cross sections of greatest efficiency.

Calculations of afflux and back water curve.

Gauging the flow of water in open channels; water-meters.

Hydraulics and hydrostatics of weirs and other canal works.

Hydrokinetics; uniform and steady flow streamline and turbulent motion. Bernoulli's theorem and its application.

Discharge through orifices and mouth pieces, and over notches and weirs. Variable heads. Laws of fluid friction. Head lost due to friction.

Hydraulic Machinery.—Impact of water on fixed and moving vane. Turbines; impulse and reaction. Description of different types of turbines. Determination of vane angles. Efficiencies of turbine plant. Governing.

Pumps.—Reciprocating, centrifugal and turbine.

9. CONSTRUCTION.

(i) Building Materials.

Stones.—Selection. Characteristics. Indian and European stones. Quarrying. Blasting. Dressing stone. Implements.

Bricks and Tiles.—Classes of bricks and their distinguishing qualities; Moulding. Drying and stacking. Brick-burning. Types of Kiln, Firebricks, Terracotta. The Tile manufacture.

Cements, Limes and Mortars.—Use of mortar, Natural and artificial cements. Varieties of Limes. Hydraulicity. Burning. Clamps. Kiln. Whitewash distemper. Concrete. Portland cement.

Timber.—Growth of trees. Felling trees. Classification and properties of Indian and other woods. Most suitable woods for particular purposes.

Stone Masonry.—Ashlar of various sorts. Block-in-course Bonds. Dressing-stone. Rubble masonry. Safe loads. Lewis Dowel. Joggle. Cramp. Template Scaffolding. Shears Derrick Gyn. Gantry.

Brick Masonry.—Types and their uses. Bond Closers. Bedding. Moisture Scaffolding. Precautions against settlement. Racking back. Plastering. Pointing. Coping. Cornice. Blocking course. Parapet. Eaves course. Corbel. Linted Jamb. Reveal. Sill. Footing. Drip-course. Pise walling. Dhajji walling. Hollow masonry. Reinforced brickwork.

(ii) Design of Structures.

Buildings.—Design of a residential bungalow; with special reference to selection of site, construction of walls, damp-proof courses, water supply, drainage and ventilation.

Fire-Proof construction.

Reinforced brick-work design; beams, floors, etc.

Thomson's principles of similar structures as regards their strength, stability, deflections, etc.

Bridges.—Selection of size determination of discharge of river by consideration of area of watershed, intensity of rainfall, and by zoning. Waterway to be provided. Depth of scour.

Design of foundation. Box; crate; well; pile; continuous masonry; reinforced concrete slab Piers ordinary and abutment. Floors and curtain walls.

Reinforced Concrete.—Nature, uses, properties, advantages and disadvantages of Reinforced Concrete over other types of construction. Assumption made in theory of stores in reinforced concrete beams.

Theory and design of simple beams. T-beams and slabs for different conditions of loading.

(iii) General principles governing the design of Railways, Roads, Harbours and other works.

Roads.—Formation and permanent-way. Types of roadways. Hill roads. Rulling gradients. Resistance of vehicles. Drainage. Tramways.

Railways.—Formation and permanent way. Gauges. Tractive force. Tunnelling. Light railways and mountain railways.

River training work.—Spurs. Groynes.

Bell bunds. Streamline Bunds. Mattresses. Aprons.

Miscellaneous.—Piles and pile-driving sheet and screw-piling. Diving operations, reclamations and dredging. Retaining walls. Depth of foundation. Counterforts and buttresses. Revetments. Construction and sinking of Masonry wells. Simple masonry dams. Technical names of various parts.

10. SURVEYING.

Surveying.—Construction of Scales, Conventional signs. Use and adjustment of instruments. Theory of levelling; Simple, compound check and reciprocal levelling. Various causes of errors in levelling. Elimination of such errors. Customary limits for errors. Method of keeping various styles of fieldbooks. Use of boning rods. Chain survey. Chain and compass survey.

Theodolite. Traversing by Gale's travers system for city and town improvement surveys. Source of errors and required precision in traversing. Traverse tables. Theory and use of the simple plane-table and tangent clinometer, with and without the magnetic compass. Theory and use of the stadia method of plain tabling with levelled heights and reductions of distances and heights by slide rule. The three point problem or plane-tabling by resection from within and without the triangle Geometrical and trigonometrical proof of the three-point problem. The two-point problem with and without the magnetic compass. Triangulation with reciprocal value; heights of stations; base line measurements. Finding values of position by observations to three known points. Computation by rectangular co-ordinates with convergency correction.

Contouring the triangulated areas by heights calculated from the reduced levels. Longitudinal and cross sections run with a level. The location on the map of a road, railway, canal or weir, etc. The general principles of tunnel alignment and of carrying surface meridians underground for mine-surveys. Discussion on the latest patterns of instruments.

Practical Astronomy.—Introduction to spherical trigonometry up to the solution of the spherical triangle and the adaptation of Napier's rules of circular parts. Definitions; systems of celestial co-ordinates; the reason for sidereal sun and mean time; acceleration, retardation and equation of time. The Julian and Gregorian calendars; time and the various astronomical corrections.

Finding the meridian of a place by observations to the sun or a star at upper culmination by equal altitudes, by the sun or stars not in the meridian, and by circumpolar stars at elongation; and finding time by the sun or stars

on the meridian and ex-meridian; finding latitudes by Polaris and circum-meridional observations. Use and construction of sundials.

Railway curves and Alignments.—Theory of curves. Curves laid out with the aid of angular instruments with one theodolite. Curves laid out by linear measurement, only. Bychords and offsets (several methods). By offsets inside the curve. Curve by ordinates from the long chord. Curve with certain given data to pass through a ruling point. Compound curves: Diversion curve: Vertical curves: Curves spiral or transition curve double centre method for laying out a straight line. Setting on pegs for earth work. Computation of areas of cross sections, etc.

11. SANITARY ENGINEERING AND WATER SUPPLY.

General.—Elementary Bacteriology and Chemistry of Water and sewage.

Water Supply.—History and development of public water supplies; sources of supply. Standards of purity for public water supplies. Quantity supplied per capita. Intakes Pumping and gravity schemes. Water towers. Purifications, slow and rapid sand filtration. Sterilisation. Clear water reservoirs, Softening Pipes, Valves and fittings. Distribution of water. Detection and prevention of waste. Metering.

Sanitation.—Site and orientation of buildings. Damp proof courses ventilation. Air conditioning. House drainage Conservancy and water-borne systems. Sanitary appliances. Constructions and testing of house drains. Pail depots. Public latrines and urinals.

Prevention of Malaria incidental to engineering construction.

Sewerage.—Separate combined and partially separate systems. Forms cross-sections, capacities and inclinations of sewers. Construction of sewers. Calculation of storm water. Storm water overflows. Syphons Lifts ejectors and pumps for sewage. Manholes and lamp eyes. Flushing of sewers.

Sewage disposal.—Characteristics and composition of sewage. Essentials with regard to sewage treatment Selections of site for disposal works. Disposal at dilution and treatment. Simple sedimentation and chemical precipitation Contact beds. Percolating filters. Septic tanks. Imhoff tanks. Activated sludge process. Sludge disposal by various methods.

Refuse.—Collection and disposal of refuse.

12. ELECTRICAL COMMUNICATION ENGINEERING.

(A)—Telegraphy.

1. Morse Telegraph Apparatus.—Description of Signaling keys, Sounders. Relays, Galvanometers. Balancing boxes Switches, etc., and their use in Morse Telegraphy.

2. Morse Circuits.—(a) Arrangements of apparatus and circuit connection for Simple and Differential and Aridge Duplex working terminal and Repeater offices. Single current and Double current working.

(b) General principle of Quadruplex working.

3. Multiplex Telegraphy.—(a) Principle of Multiplex Baudot printing Telegraph. Different methods of working the Baudot system. Double and quadruple working. Description of principal apparatus used in Baudot Telegraphy including Retransmitters. Tape Transmitters. Keyboard Perforators, etc., and their use.

(b) Teleprinter working. General principle of the "Stop Start" system of working. Teleprinter and its principle of action. General knowledge of its Principle parts.

4. Testing of Lines and Cables and details of apparatus employed for such tests.

5. Power arrangements for Telegraph and Telephone Offices. Use of Motor Generators, Rectifiers, Charging Boards Primary Cells and Accumulator.

6. Elementary Principles of Construction of Telegraph Lines.—Description of Underground and Underwater Cables. How they are manufactured and laid.

(B) Telephony.

Manual System.—General principles of Magnetic, Semi-Central Battery, and Central Battery systems of working.

Details of Exchange and Sub-office apparatus, and their circuit diagrams including Private Branch office equipments, Protective devices in Exchange and sub-office and at Cable and Line Terminals. Details of Party Line working with Selective ringing.

2. Automatic Systems—General principles of well-known systems of Automatic Exchanges Schematic Circuit diagrams or principal Exchange equipments. Automatic branch Exchanges. Details of Subscribers, Apparatus for the above systems.

3. Telephone Transmissions.—Principle of Transposition of Telephone Circuits. Prevention of Inductive interference on Telephone Circuit Characteristics of Telephone Circuits, Impedance of Telephone Circuits, and its measurement Attenuation and Wave length Constants. Decibel and Neper. Mile Standard Cable Transmission loss measurement. Wave filter Carrier Current working Telephone Repeater.

Thermionic Valves and their use in Telephony.

(C) Radio Telegraphy and Telephony.

1. General details of Oscillatory Circuits, Natural Frequency and Wave-length. Logarithmic decrement. Forced Oscillation.

Long Wave and Short Wave Radio working. Points of difference between the two systems.

Various methods of Reception and Transmission of Electro-magnetic waves. Different types of detectors and their adjuncts.

Thermionic valves as used on wireless Telegraphy and wireless Telephony. Valve as Detectors, Amplifiers. Rectifiers, Modulators and Oscillation Generators. Details of Transmitting and Receiving Circuits. Radiation of Electromagnetic Waves. Atmospheric effects. Fading. Power plant for Wireless offices. Elementary principle of design of Aerials and Earths or Long and Short wave systems. Directional Transmission and Reception.

13. MECHANICAL ENGINEERING.

Theory of Machines and Machine Design.

Kinematics.—Methods of determining the relative velocities of parts in machines, by calculation and by graphic methods. Velocity and acceleration diagrams for the ordinary reciprocating engine and for quick return motions. Velocity ratios for toothed gearing including epicycle gears. Velocity and acceleration in cam gears.

Kinetics.—Balancing of rotors and of reciprocating engines. Crank effort diagram of engines, and speed variation of fly-wheels. Governors. Simple cases of vibration problems. Whirling of shafts and torsional oscillations.

Friction.—Power transmitted or absorbed by belt drives and brakes. Friction in gearings. Friction and lubrication of journal and thrust bearings, ball and roller bearings. Screw gears.

Design of fastenings and Machine Parts. Proportions for riveted, bolted and welded joints and fastening, pipe connexions—cranks, rods and levers, valves, pipes and cylinders, bearings, couplings, shafts, and keyways. Tooth profiled.

Properties and Strength of Materials.

Stress and strain in tension, compression, and shear.

Hooke's law, Relations between elastic constants.

Simple cases of combined stress in two dimensions.

Circle diagram.

Compound bars in tension and compression. Elementary consideration of stress due to temperature changes.

Riveted and welded joints.

Thin cylindrical and spherical shells under internal pressure.

Stressed in thick-walled cylinders under internal and external pressure.

Bending moments and shearing forces.

Simple theory of beams.

Slope and deflexion of cantilevers and freely supported beams for simple cases of loading.

Torsion of round bars. Transmission of power by shafts. Simple cases of combined bending and direct stress and combined bending and torsion.

Work done in elastic deformation. Strain energy. Stresses due to suddenly applied loads.

Laminated springs and close coiled helical springs.

Elementary theory of strut with use of empirical formulæ.

The mechanical properties of materials.—Composition and properties of the important metals used by engineers. Effects of heat treatments, annealing, and normalising. The effect of cold work on the properties of metals. Elasticity, plasticity, ductility, tenacity, hardness, resistance to shock resistance to repeated and alternating stress. Creep at elevated temperatures. Common types of machine and instruments for the investigation of mechanical properties. Forms of specimen, procedure in carrying out tests, and methods of expressing results.

Heat Engines.

Physical properties of steam; steam tables and their use. Fundamental laws of thermodynamics. Reversible and irreversible process. Ideal and actual cycles. Construction and use of temperature-entropy and heat-entropy charts. Behaviour of steam in engine cylinders. Jacketing. Superheating. Compounding. Horse power and steam consumption.

Testing of engines. Indicators and indicator diagrams. Combination of indicatory diagrams for multiple-expansion engines. Brakes and Brake horse-power. Mechanical and thermal efficiencies. Steam consumption and heat balance for steam plants. The steam turbine. Steam flow in nozzles and blading. Calculations relating to blading and horse-power. Steam cycles in modern power plants. Regenerative feed heating and steam reheating cycles. Condensing plants; Jet and surface condensers. Air pumps. Air ejectors. Condensate extraction pumps. Fuels, Combustion; air supply and regulation. Analysis of flue gases. Boilers. Super-heaters. Economisers. Air preheaters. Furnaces. Boiler trials. Valve, Valve gear and valve diagrams Governing. Crank effort diagrams. Fly-wheels. Balancing of engines.

The laws of perfect gases. Expansion and compression. Ideal cycles applicable to the internal combustion engine, and their representation by pressure volume and entropy temperature diagrams. Air standard efficiencies. Comparison of actual and ideal efficiency.

General properties of liquid and gaseous fuels. Calorific value and its determination. Combustion. Calculation of air fuel-ratios. Use of exhaust gas analysis. Volumetric efficiency. Gas producers.

The classification and cycles of operation of gas engine, petrol engines and heavy oil engines. Character of combustion process.

The general construction of internal combustion engines. Carburettors Electrical ignition systems. Fuel pumps and injection systems. Governors and fuel control. Superchargers.

The mechanics of internal combustion engine-speed fluctuation—Balancing.

The testing of internal combustion engines. Apparatus and procedure. Indicators. Characteristics of indicator diagrams Fuel consumption and heat distribution. Engine losses. The representation and interpretation of test results.

Hydraulics and Hydraulic Machinery.

Pressure of water at a point. Centre of pressure. Pressure on a surface. Flow of water through orifices, notches, and weirs. Laws of fluid friction. Steady flow in pipes and uniform channels. General phenomena of flow in rivers. Gauging of flow in pipes and open channels. Dynamical similarity. Impact of jets on planes. Types of turbines. General principles of design of turbines. Governing of turbines types of pumping machinery. General principles of design of centrifugal pumps. Hydraulic cranes and hoists Hydraulic transmission gear. General principles of hydraulic transmission of power.

14. ARCHITECTURE AND TOWN PLANNING.

A. Architecture—

1. History of Architecture—

Western: The chief periods and styles from ancient Greek to modern.

Indian: Buddhist, early Hindu, Muslim and modern.

2. Theory of Architecture—

General principles. Elements of composition. Accommodation and circulation. Balance and proposition. Function. Harmony and contrast. Style.

3. Architectural Construction—

Drainage. Foundations, Materials. Walls. Roofing-beams, arches and vaults-minor, elements-decoration. Plumbing, heating, ventilating, lighting, acoustics, sanitation, colour.

4. Quantities Estimates, Contracts, laws.

B. Town-Planning—

1. History of Town Planning—ancient, mediæval and modern Effects of social changes.

2. Practice—Surveys. General Principles, sites, climate, water supply, drainage, transport, Zoning. Focal centres and their distribution. Highways. Public services and amenities. Uniformity and variety.

3. Laws—

Authorities-Contract, local special. Bye-Laws. Acquisition of land.

Regulations for the Physical Examination of Candidates for appointment to the Engineering Services.

[These regulations which apply to men as well as women candidates are published for their convenience and in order to enable them to ascertain the probability of their coming up to the required physical standards. But it must be clearly understood that the Government of India reserve to themselves an absolute discretion to reject as unfit any candidate whom they may consider, on the report of the Medical Board to be physically disqualified for the Services and that their discretion is in no respect limited by these regulations. Save as provided in Regulation 2 (b), these regulations are intended merely for the guidance of Medical Examiners and are not meant to restrict their discretion in any way. A lady doctor will be co-opted as a Member of the Medical Board whenever a woman candidate is to be examined.]

1. To be passed as fit for appointment a candidate must be in good mental and bodily health, and free from any physical defect likely to interfere with the efficient performance of the duties of his appointment.

2. (a) In the matter of correlation of age, height and chest girth it is left to the Medical Board to use whatever correlation figures are considered most suitable as a guide in the examination of the candidates.

(b) For all candidates for appointment to the Service/Department a minimum height of 5 ft. and a minimum chest measurement of 31 ins. girth when fully expanded, with a minimum expansion of 2 ins. is required. These minima are absolute and no Medical Officer or Board has power to waive them.

N.B.—Regulation 2 (b) does not apply to candidates for the Central Engineering Service, Class I and the Telegraph Engineering Service, Class I.

3. The candidates' height will be measured as follows:—

He will remove his shoes and be placed against the standard with his feet together and the weight thrown on the heels and not on the toes or outer sides of the feet. He will stand erect without rigidity and with the heels, calves, buttocks and shoulders touching the standard; the chin will be depressed to bring the vertex of the head level under the horizontal bar, and the height will be recorded in inches and parts of an inch to quarters.

4. The candidate's chest will be measured as follows:—

He will be made to stand erect with his feet together, and to raise his arms over his head. The tape will be so adjusted round the chest that its upper edge touches the inferior angles of the shoulder blades behind, and lies in the same horizontal plane when the tape is taken round the chest. The arms will then be lowered to hang loosely by the side, and care will be taken that the shoulders are not thrown upwards or backwards so as to displace the tape. The candidates will then be directed to take a deep inspiration several times, and the maximum expansion of the chest will be carefully noted. The minimum and maximum will then be recorded in inches, thus 33-35, 34-36½, etc. In recording the measurements, fraction of less than half inch should not be noted.

5. The candidate will also be weighed and his weight recorded in pounds. Fractions of a pound should not be noted.

6. The candidate's eye-sight will be tested in accordance with the following rules. The results of each test will be recorded.

(i) General.—The candidate's eyes will be submitted to a general examination directed to the detection of any disease or abnormality. The candidate will be rejected if he suffers from any squint or morbid conditions of the eyes, eyelids or contiguous structures of such a sort as to render, or to be likely at a future date to render him unfit for service.

N.B.—No candidate will be accepted for appointment whose standard of vision does not come upto the requirements specified below without the use of the contact

glasses. (A contact glass or lens is defined as a glass shell, the concavity of which is in contact with the globe of the eye, a layer of liquid being interposed between the lens and the cornea. The meaning of the word "glasses" whenever used in these Regulations is to be interpreted as not covering "contact glasses.")

(ii) Visual Acuity.—The candidate will be examined, with the apparatus and according to the methods prescribed by the Railway Board's Standing Advisory Committee of Medical Officers, to determine his acuity of vision, and the examination will include two tests, one for distant and the other for near vision. Each eye will be examined separately. No candidate will be accepted whose Visual Acuity falls below the following standards:—

A.—Railway Services.

Service	Naked eye	With or without glasses	Near vision
1. Railway Engineering Services ...	6/24, 6/24, or 6/18, 6/36,	6/9, 6/9, provided myopia does not exceed—3'5D or manifest Hypermetropia + 1'5D.	0'6 each eye.
2. Stores Department of Railways...	6/60, 6/36,	6/9, 6/12 provided myopia does not exceed—4'5D or manifest Hypermetropia + 1'5D	0'6 each eye.

B.—Central Engineering Service, Class I, Central Engineering Service Class II, Central Electrical Engineering Service Classes I and II and the Telegraph Engineering Service, Class I.

						The one eye	The other
Distant vision—							
without glasses ...	...	...	...	...	...	6/24	6/24
corrected with glasses ...	...	...	...	...	...	6/6	6/12
Near vision—							
with or without glasses ...	...	...	...	...	...	0'8	1

(iii) Colour perception.—(A) (i) Railway Engineering Services.—The candidate will be examined for colour knowledge with the apparatus and according to the methods prescribed by the Railway Board's Standing Advisory Committee of Medical Officers. Any defect of colour perception will be a cause for rejection of the candidate.

(ii) Other Railway Services.

(a) Each eye will be examined separately and the lids must be kept wide open during the test.

(b) Inability to distinguish the principal colours will not be regarded as a cause for rejection, but the fact will be noted in the proceedings and the candidates will be informed.

(c) Each eye must have a full field of vision as tested by hand movements.

(d) The degree of acuteness of vision of all candidates for appointment will be entered in the proceedings in the following manner:—

V.R. =, with glasses— Reads;

V.L. =, with glasses— Reads;

(e) In cases of serious abnormality the opinion of an ophthalmic specialist should be obtained.

(B) Central Engineering Service, Class I, Central Engineering Service, Class II, ...Central Electrical Engineering Service Classes I and II and the Telegraph Engineering Service Class I.—Inability to distinguish the principal colours will be regarded as a cause for rejection.

(iv) Night Blindness.—Railway Engineering services.—The candidate's night vision will be tested, with the apparatus and according to the methods prescribed by the Railway Board's Standing Advisory Committee of Medical Officers to ascertain whether or not he suffers from night blindness. The candidate who under the conditions of the ordinary Test of Visual Acuity has 6/6 vision with both eyes open with or without glasses will be rejected, if under the conditions of the Night Blindness Tests, his vision with both eyes open, with or without glasses, falls below 6/24.

(v) Field of Vision.—(a) Railway Engineering service.—The fields of vision of the candidate's eyes will be examined with the apparatus and according to the methods prescribed by the Railway Board's Standing Advisory Committee of Medical Officers. Any defect will be a cause for rejection of the candidate.

(B) Central Engineering Service, Class I, Central Engineering Service, Class II, Central Electrical Engineering Service Classes I and II and the Telegraph Engineering Service, Class I.—Each eye must have a full field of vision as tested by hand movements.

7. The urine (passed in the presence of the examiner) should be examined and the result recorded.

8. The following additional points should be observed:—

(a) that the candidate's hearing in each ear is good and that there is no sign of disease of the ear;

(b) that his speech is without impediment;

(c) that his teeth are in good order and that he is provided with dentures where necessary for effective mastication (well filled teeth will be considered sound);

(d) that his chest is well formed, and his chest expansion sufficient; that his heart and lungs are sound and that his blood pressure within normal limits.

(e) that there is no evidence of any abdominal disease;

(f) that he is not ruptured;

(g) that he does not suffer from a severe degree of hydrocele, varicocele, varicose veins or piles;

(h) that his limbs, hand and feet are well formed and developed, and that there is free and perfect motion of all his joints;

(i) that he does not suffer from any inveterate skin disease;

(j) that there is no congenital malformation or defect;

(k) that he does not bear traces of acute or chronic disease pointing to an impaired constitution;

(l) that he bears marks of efficient vaccination; and

(m) that he is free from communicable diseases.

When any defect is found, it must be noted in the certificate and the medical examiners should state their opinion as to whether or not it is likely to interfere with the efficient performance of the duties which will be required of the candidate. If the condition is remediable by operation it should be so stated.

NOTE.—Candidates are warned that there is no right of appeal from a Medical Board, special or standing, appointed to determine their fitness for the above Service. If, however,

Government are satisfied on the evidence produced to them of the possibility of an error of judgment in the decision of the first Board it is open to Government to allow an appeal to a second Board.

If any Medical certificate is produced by a candidate as a piece of evidence about the possibility of an error of judgment in the decision of the First Board, the certificate will not be taken into consideration unless it contains a note by the medical practitioner concerned to the effect that it has been given in full knowledge of the fact that the candidate has already been rejected as unfit for service by a Medical Board.

Engineering Services Examination, January, 1953

CORRIGENDUM.

NOTICE.—

Para 1, line 19—

For "STA971/52" read "S.R.O. 1246".

COMPENDIUM OF RULES.—

Page 7, column 1, line 23—

Against "Massachusetts Institute of Technology" for "in option" read "option in".

Page 9, column 1—

Below "F. Telegraph Engineering Service, Class I" delete "Marks".

STANDARDS AND SYLLABUS.—

Page 13, column 2, line 25—

For "thermodynamics" read "thermodynamics".

PHYSICAL REGULATIONS.—

Page 14—

In the last column at bottom of page add "eye" after "The other".

Page 15, column 1, para 8 (j)—

For "maformation" read "malformation".

APPLICATION FORM.—

Page 4, column 28, line 3—

For "order of preference state" read "state order of preference".

Page 5, column 31, item (d)—

Read (1) & (2) for (1) & (1) in the reply column.

[Serial No.]

UNION PUBLIC SERVICE COMMISSION.

Application Form for the Engineering Services Examination.

To be filled up by a candidate in his/her own handwriting and submitted to the Secretary, Union Public Service Commission, not later than the date prescribed in the Notice. A treasury receipt or *Crossed* Indian postal order payable to the Secretary, Union Public Service Commission at New Delhi Post Office for Rs. 81-8-0 (Rs. 19-10-0 in the case of candidates belonging to scheduled castes or scheduled tribes) must be forwarded with this application. An application not accompanied by a treasury receipt or *Crossed* Indian postal order will not be considered. This does not apply to displaced persons seeking remission of the fee *vide* para 11 (ii) of the Instructions to candidates.

(All columns should be completed and all answers should be given in words and not by dashes or dots).

1. Name in full (in block capitals)		
2. Postal address in full (to which all correspondence, including Admission Certificate, should be sent). Any change of address should be communicated at once to the Secretary, Union Public Service Commission, New Delhi.		
NOTE.—Candidates must make arrangements to see that communications addressed to them at the addresses stated in their applications are redirected, if necessary. The Union Public Service Commission make every effort to take account of changes in candidates' addresses but cannot accept any responsibility in this matter.		
3. Exact date of birth		
4. (a) Place of birth and the State in which it is situated.	(a)	
(b) State to which you belong	(b)	
5. Give below particulars of place(s) where you have lived for more than one year during the last five years.		
Place (including district of residence).	Address	Period of residence with dates.
6. (a) State your Religion	(a)	
(b) Are you a member of a scheduled caste or a scheduled tribe? (Answer Yes or No). If the answer is yes, give particulars and attach a certificate from the District Magistrate in support of your claim (<i>vide</i> para 11 (i) of the Instructions).	(b)	
7. Are you an Anglo-Indian? (Answer Yes or No) ...		

16. Educational Institutions attended—

(a) Secondary or High Schools.*

[illegible]

*Including the National Defence Academy, Dehra Dun.

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(b) University or Universities or other places of higher education attended.

[illegible]

17. Give particulars of all examinations passed at the University or place of higher education and degrees you obtained (Commencing with the Matriculation or equivalent examination).

[illegible]

18. Give particulars of any prizes, medals or scholarships obtained by you at the University or Institution.

19. (i) State whether you passed the Matriculation examination as a *private candidate*.

(ii) If you did so who recommended your application?

20. Give the name and designation of the officer from whom you attach a certificate of character.

21. Have you ever been a boy scout or a member of a Cadet or University Training Corps? If so, give particulars as to date and ranks achieved. State also your Corps number and the name of the School or College from which you were enrolled. The Corps number *must* be stated.

22. State the positions of authority, if any, held by you in—

(a) School

(b) College

(c) Boy Scouts' Association

(d) U.T.C.

(e) N.C.C.

(i)

(ii)

(a).

(b)

(c)

(d)

(e)

23. Have you had any special preparation for this examination? If so, give particulars.

24. If your time since leaving University, College or Institution is not fully accounted for by the replies given above account for the remainder here with dates. If you have had employers, state their names and addresses in full.

25. (a) Are you free from debt?
(b) If you are under liability to repay money advanced by any institution or party for your education or for any other purpose state the particulars.
Answer 'Yes' or 'No' to question (a). If the answer is 'No' answer question (b) clearly.

26. (a) Have you been a candidate for any post advertised, or for any examination conducted, by the Federal (now Union) Public Service Commission?
If so, give below the particulars and dates, including the place obtained (approximately if you do not recollect the exact place).

Name of Examination or Post for which you applied	Year	Whether you were admitted to the examination and whether you appeared thereat	Your Roll number	Rank
		Whether you were called for interview		

(b) Have you applied for any other examination to be held shortly by the Union Public Service Commission? If the answer be "Yes" give the name of the examination or the examinations.

27. State at which of the following Centres you wish to appear at this examination:—

Allahabad, Bombay, Calcutta, Delhi and Madras.

N.B.—This list of centres is liable to modification; ordinarily no request for a change in the place selected by the candidate will be entertained.

28. State the Service(s)/Department(s) for which you wish to compete. If you are competing for more than one Service/Department, order of preference state in the Services/Departments to which you would desire to be appointed for appointment.

N.B.—The selection of services and the order of preference once made will be treated as final.

Due consideration will be given to the preferences expressed by a candidate at the time of his/her application but the Government of India reserve the right to assign him/her to any Service or Department for which he/she may be found most suitable.

- (1).....
- (2).....
- (3).....
- (4).....
- (5).....
- (6).....

29. If you are selected for appointment to the Indian Railway Service of Engineers or Signal or Electrical Engineering Department of the Superior Revenue Establishment of Indian Railways, state the Railway of your preference.
- (A candidate may, if he/she so chooses, enter against this item one or more or all of the Railways in order of preference).

30. Do you understand that Government have full discretion in the matter of appointing you to any of the Services or Departments for which you are a candidate, should you be selected for appointment?

31. Write in the column opposite, which of the following subjects you select as optional subjects:—

N.B.—No request for a change in the selection of optional subjects will be considered.

Candidates who do not state the optional subjects offered by them or offer wrong subject will do so at their own risk and may be disqualified.

- (a) *For Indian Railway Service of Engineers:—*

- | | | | |
|---------------------------------------|-----|---|-----|
| (1) Prime Movers | ... | } | (1) |
| (2) Hydraulics and Hydraulic Machines | ... | | |
| (3) Electrical Engineering | ... | } | (2) |
| (4) Architecture and Town Planning | ... | | |
| (5) Mechanical Engineering | ... | | |

- (b) For Electrical Engineering Department:—

- | | | |
|---|---|-----|
| (1) Physics (including Electricity and Magnetism) ... | } | (1) |
| (2) Applied Mathematics ... | | |
| (3) Surveying ... | } | (2) |
| (4) Electrical Communication Engineering ... | | |

- (c) For Signal Engineering Department:—

- | | | | |
|--|-----|-----|-------|
| (1) Prime Movers | ... | ... | } (1) |
| (2) Physics (including Electricity and Magnetism) | ... | ... | |
| (3) Applied Mechanics (including strength of Materials and theory of Structures) | ... | ... | |
| (4) Applied Mathematics | ... | ... | |
| (5) CONSTRUCTION:— | ... | ... | |

Paper I.—(i) Building Materials and Building Construction. (ii) Design of Structures ... (2)

Paper II.—Roads, Railways (General Principles governing the design of Railways, Roads, Harbours and other works).

- (d) For Central Engineering Service, Class I:—

- | | | |
|---------------------------------------|-----|-------|
| (1) Prime Movers | ... | } (1) |
| (2) Hydraulics and Hydraulic Machines | ... | |
| (3) Electrical Engineering | ... | |
| (4) Architecture and Town Planning | ... | |
| (5) Mechanical Engineering | ... | |
| | | (2) |

- (e) For Central Engineering Service, Class II:—

- | | | |
|---------------------------------------|------|-------|
| (1) Prime Movers | ... | } (1) |
| (2) Hydraulics and Hydraulic Machines | .... |  |
| (3) Electrical Engineering | ... | } (2) |
| (4) Mechanical Engineering | .... |  |

- (f) For Telegraph Engineering Service, Class I:—

Only one Subject should be selected.

- (1) Prime Movers ...
- (2) Physics (including Electricity and Magnetism) ...
- (3) Mechanical Engineering ...

31. (a) State the name of the treasury, bank or post office from which you submit a treasury receipt or postal orders, and the number and dates of the treasury receipt or postal orders.

Name of treasury, bank or post office	Number of treasury receipt or Crossed postal orders	Date	Value Rs. As. Ps.

(b) Give a list of the documents attached to the application. (Copies should also be attached where asked for).

(1)
(2)
(3)
(4)

Declaration to be signed by the candidate.

I hereby declare that the statements in this application are true to the best of my knowledge and belief and that I

- * (i) am a citizen of India,
- (ii) was domiciled in areas now forming Pakistan but have migrated to India and a certificate of eligibility is not necessary in my case,
- (iii) was domiciled in areas now forming Pakistan but have migrated to India and a certificate of eligibility is necessary in my case,
- (iv) am a subject of Nepal/Sikkim/a Portuguese possession in India/a French possession in India.

Signature.....

Date.....

* Strike out the portions not applicable.

FOR THE USE OF GOVERNMENT SERVANTS ONLY.

[Vide instruction (2)].

CERTIFICATE BY HEAD OF DEPARTMENT OR OFFICE.

Certified that Mr./Mrs./Miss..... holds a temporary/substantively a permanent post under the Central/State Government. His/Her character so far known to me is good and his/her work suggests that he/she would be suitable for appointment if he/she is successful in the examination. I recommend that he/she be admitted to it.

Signature.....

Designation.....

Department.....

Date.....

UNION PUBLIC SERVICE COMMISSION.

Engineering Services Examination.

CERTIFICATE OF PRACTICAL TRAINING IN SURVEYING.

Certified that..... who has been a student in this College/Institution has undergone in this College/Institution a practical course of training in Surveying equivalent to that given in the full course for a degree or diploma in Civil Engineering.

2. Certified also that this College is affiliated to the University of.....

Signature.....

Designation.....

Name of College or Institution.....

Where situated.....

Date.....

NOTE.—This form must be submitted by those candidates who have offered *Surveying* as a subject for the examination

FINANCIAL SECRETARIAT

Circular, dated 26th August 1952.

Delay in preferring pay and other claims by the several Departments of Government.

No. FI.(B.) 5030-5109—C. R. 25-52-2. The Accountant-General, Mysore, Bangalore, has brought to notice several cases of the issue of orders of Government condoning delay in preferring claims by Departments and authorising the Audit Office to investigate the claims.

Failure on the part of the departments in preferring the claims in time not only causes undue hardship to the officials concerned, but also throws unnecessary burden on the Audit Office.

Evidently, the instructions contained in Articles 11, 12 and 12-A of the Mysore Civil Account Code, Volume I (since modified in Government Order No. FI. 7195-7296—S. & A. 326-51-1, dated 29th February 1952) are not being strictly adhered to.

It is also noticed that generally no reasons are given for the delay in preferring claims and where reasons are given, they are not convincing. The rule that investigation should be ordered only in exceptional cases where the delay is due to unavoidable reasons is not observed.

It is of the utmost importance that claims against Government should be liquidated at the earliest possible

moment as belated claims cannot be effectively checked in the Audit Office.

All Heads of Departments are hereby directed that delay in the settlement of claims of all officers under their control should be scrupulously avoided, as Government will reject all old claims which are barred by time under the rules, unless the delay is proved to be clearly due to circumstances beyond the control of the officers making the claim.

Sanctioning authorities should jealously scrutinise all old claims preferred for condonation of delay, and reject such of them in respect of which convincing reasons for the delay are not forthcoming.

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Circular dated 30th August 1952.

No. FI. (B.) 5230-320—C. R. 26-52-2. A doubt was expressed as to whether an officer authorised to sanction pension may sanction invalid pension also, as the rules in the Mysore Service Regulations are not specific.

2. With a view to clarify the point of doubt, it is hereby laid down that all officers authorised to sanction pensions may also sanction Invalid Pensions.

M. SHAMANNA,

Secretary to Government,
Finance Department.

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